192135

STATE OF SOUTH CAROLINA)

(Caption of Case))
Application of Jacabb Utilities, LLC to request to establish water rates for Jacabb Utilities, LLC and approval of Agreement for Water Services with Pointe West, Inc., to serve Highpointe Development in Oconee County)

COPY
Posted: tod
Dept: S.A.
Date: 4/28/08
Time: 10:45

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

COVER SHEET

S.C. PUBLIC SERVICE COMMISSION RECEIVE APR 18 2008 RECEIVE

DOCKET NUMBER: 2008 - 173 - W

(Please type or print)

Submitted by:	James S. Eakes	SC Bar Number:	SC Bar # 1820
Address:	Allen and Eakes	Telephone:	864-224-1681
	PO Box 1405	Fax:	864-234-8411
	Anderson, SC 29622	Other:	
		Email:	sheilat@goldieassociates.com

NOTE: The cover sheet and information contained herein neither replaces nor supplements the filing and service of pleadings or other papers as required by law. This form is required for use by the Public Service Commission of South Carolina for the purpose of docketing and must be filled out completely.

DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition ☒ Request for item to be placed on Commission's Agenda expeditiously

☐ Other:

INDUSTRY (Check one)

- ☐ Electric
- ☐ Electric/Gas
- ☐ Electric/Telecommunications
- ☐ Electric/Water
- ☐ Electric/Water/Telecom.
- ☐ Electric/Water/Sewer
- ☐ Gas
- ☐ Railroad
- ☐ Sewer
- ☐ Telecommunications
- ☐ Transportation
- ☒ Water
- ☐ Water/Sewer
- ☐ Administrative Matter
- ☐ Other:

NATURE OF ACTION (Check all that apply)

- ☐ Affidavit
- ☐ Agreement
- ☐ Answer
- ☐ Appellate Review
- ☒ Application
- ☐ Brief
- ☐ Certificate
- ☐ Comments
- ☐ Complaint
- ☐ Consent Order
- ☐ Discovery
- ☐ Exhibit
- ☐ Expedited Consideration
- ☐ Interconnection Agreement
- ☐ Interconnection Amendment
- ☐ Late-Filed Exhibit
- ☐ Letter
- ☐ Memorandum
- ☐ Motion
- ☐ Objection
- ☐ Petition
- ☐ Petition for Reconsideration
- ☐ Petition for Rulemaking
- ☐ Petition for Rule to Show Cause
- ☐ Petition to Intervene
- ☐ Petition to Intervene Out of Time
- ☐ Prefiled Testimony
- ☐ Promotion
- ☐ Proposed Order
- ☐ Protest
- ☐ Publisher's Affidavit
- ☐ Report
- ☐ Request
- ☐ Request for Certificatio
- ☐ Request for Investigatior
- ☐ Resale Agreement
- ☐ Resale Amendment
- ☐ Reservation Letter
- ☐ Response
- ☐ Response to Discovery
- ☐ Return to Petition
- ☐ Stipulation
- ☐ Subpoena
- ☐ Tariff
- ☐ Other:

RECEIVED
APR 25 2008
PSC SC
DOCKETING DEPT.

ALLEN AND EAKES
ATTORNEYS AT LAW
P.O. BOX 1405
ANDERSON, S. C. 29622

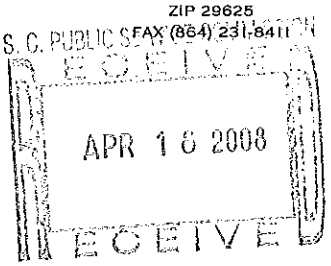
RICHARD K. ALLEN, JR.*
JAMES S. EAKES*

THOMAS ALLEN (1881-1963)
RICHARD K. ALLEN (1921-1982)

* CERTIFIED CIVIL COURT MEDIATOR

TEL. (864) 224-1681
114 WEST ORR STREET
ZIP 29625
FAX (864) 231-8411

April 16, 2008
VIA: FIRST CLASS MAIL



The Honorable Charles L.A. Terreni
Chief Clerk/Administrator
Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, SC 29210

RE: Application of Jacabb Utilities, LLC to request to establish water rates for Jacabb Utilities, LLC and approval of Agreement for Water Services with Pointe West, Inc. to serve Highpointe Development in Oconee County

Dear Mr. Terreni:

Enclosed for filing are the original and ten (10) copies of the Application of Jacabb Utilities, LLC in the above reference matter. I would appreciate your acknowledging receipt of this document by date-stamping the extra copy of this letter that is enclosed and returning it to me via first class mail.

By copy of this letter, I am serving the Office of Regulatory Staff and enclose a certificate to that effect. If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

ALLEN & EAKES

James S. Eakes
Attorney at Law

Enclosure

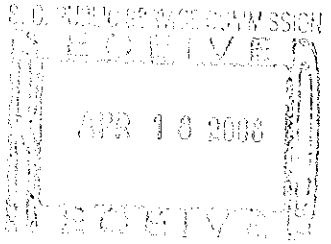
cc: Dukes Scott, Executive Director, ORS
Stephen R. Goldie, Jacabb Utilites, LLC

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-173-W



IN RE:

Application of Jacabb Utilities, LLC to request to establish water rates for Jacabb Utilities, LLC and approval of Agreement for Water Services with Pointe West, Inc. to serve Highpointe Development in Oconee County	**APPLICATION**

Jacabb Utilities, LLC ("Applicant" or "Utility") hereby submits a proposed schedule of water rates and Agreement for Water Service for consideration by this Honorable Commission pursuant to the provisions of 26 S.C. Code Ann. Regs., 103-700 et seq. (Supp.2006). In support of this request, Applicant would respectively show as follows:

1. Applicant is a public utility currently authorized to operate water and wastewater systems under the jurisdiction of the South Carolina Public Service Commission ("Commission") in Oconee County, as well as certain other counties in this state. Applicant, Jacabb Utilities, LLC, is a South Carolina limited liability company in good standing, and its certificate of existence is presently on file with the Commission. An appropriate bond has been posted with the Commission.

2. Applicant does not have on file approved rates and charges for water services, and Applicant, therefore, requests the Commission approve the Proposed Schedule of Rates and Charges detailed in Exhibit "A".

3. The Applicant, also, seeks approval of an agreement entered into between Applicant and Pointe West, Inc. dated November 16, 2007 ("Agreement"), a copy of which is attached hereto and incorporated herein by reference as Exhibit "B". Applicant will provide water service to the proposed development known as High Pointe Development pursuant to all of the terms, conditions, rates, and charges set forth in the proposed rate schedule upon Commission approval.

4. Pursuant to this agreement, Applicant proposes to serve Highpointe Development which will consist of multi-family residences. The Agreement provides, *inter alia*, that the Developer will construct all of the necessary water distribution facilities ("Facilities") required to serve the property, interconnect the facilities with the Utility's existing water system, acquire all necessary easements and rights-of-way ("Easements") and convey such Facilities and Easements to Applicant. Performance of the Agreement is conditioned upon its approval by this Commission.

5. The governmental utility Seneca Light & Water (SL&W) authorized to serve the proposed development has agreed to only serve this multi-family development by means of a master meter, and has authorized Jacabb Utilities to own and operate further distribution to the proposed units.

6. Applicant respectfully requests that the Commission act expeditiously, to the extent necessary, to grant the approval requested before August 1, 2008, in order that the Applicant may timely meet the business plans and objectives of both the Applicant and Developer and to serve the proposed customers in a timely manner.

7. Applicant submits that the public convenience and necessity will be served by the approval of this Agreement. Applicant further submits that no hearing in this matter is

required. There are currently no customers in the development, and S.C. Code Ann §58-5-240(G)(Supp.2006) allows the Commission to put rates into effect without a hearing upon proper order and for the reasons set forth in the statute

8. Applicant requests that the Commission approve the Agreement dated November 16, 2007, Exhibit "B", and, also, approve the attached "Proposed Schedule of Rates and Charges", Exhibit "A".

9. All correspondence and communications regarding this matter should be sent to the undersigned.

WHEREFORE, having fully set forth its Application, Applicant prays that the Proposed Schedule of Rates and Charges and Agreement be approved, that a hearing on the within matter be waived or review of the within application and rate schedule be expedited, and that Applicant be granted such other and further relief as the Commission may deem just and proper.

ALLEN AND EAKES

By: James S. Eakes

James S. Eakes, S.C. Bar Number 1820
PO Box 1405
Anderson, SC 29622
(864) 224-1681

Attorney for Applicant

Anderson, South Carolina
This 16th day of April, 2008

EXHIBIT "A"
JACABB UTILITIES, LLC
PROPOSED SCHEDULE OF RATES AND CHARGES

1. Monthly Charges

Residential

Basic Facilities Charge (BFC) per single family house, condominium, mobile home or apartment unit:		$	7.86 per unit *
Commodity Charge:		$	3.00 per 1,000 gallons or 134 cft.

* Residential customers with meters of 1" or larger will be charged commercial rate.

Commercial
Basic Facilities Charge
by meter size:

1" meter	$	16.93
1.5" meter	$	31.24
2" meter	$	48.17
3" meter	$	95.33

Commodity Charge: $ 3.00 per 1,000 gallons or 134 cft.

Charge for Water Distribution Only
Where water is purchased from a government body or agency or other entity for distribution and resale by the Company, the following rates apply:

Residential

Basic Facilities Charge (BFC) per single family house, condominium, mobile home or apartment unit:	$	7.86 per unit *
Commodity Charge:	$	3.31 per 1,000 gallons or 134 cft.

* Residential customers with meters of 1" or larger will be charged commercial rate.

Commercial
Basic Facilities Charge
by meter size:

1" meter	$	16.93
1.5" meter	$	31.24
2" meter	$	48.17
3" meter	$	95.33

Commodity Charge: $ 3.31 per 1,000 gallons or 134 cft.

The Utility will also charge for the cost of water purchased from the government body or agency, or other entity. The charges imposed or charged by the government body or agency, or other entity providing the water supply will be charged to the Utility's affected customers on a pro rata basis without markup. The Utility shall limit the amount of non-account water charged to customers not to exceed 10% of total water purchased from the governmental body or agency, or other entity. Water loss due to leaks and routine system flushing must be accounted for and thoroughly documented by detailing location, timeframe and reason for leak or flushing. Where the Utility is required by regulatory authority with jurisdiction over the Utility to interconnect to the water supply system of a government body or agency or other entity and tap/connection/impact fees are imposed by that entity, such tap/connection/impact fees will also be charged to the Utility's affected customers on a pro rata basis, without markup. The Utility shall give the Commission thirty days notice of its intent to pass-through to customers purchased water charges which are higher than those in effect at the time of the Commission's approv passed through to customers rate is found by the Commission to be so justified, Jacabb Utilities will then be required to give customers an additional thirty days notice before the increase in the purchased water charges to be passed-through may be put into effect.

Commercial customers are those not included in the residential category above and include, but are not limited to hotels, stores, restaurants, offices, industry, etc.

The Utility will, for the convenience of the owner, bill a tenant or the Home Owners Association in a multi-unit building, consisting of four or more residential units, which is served by a master water meter or a single water connection. However, in such cases all arrearages must be satisfied before service will be provided to a new tenant or before interrupted service will be restored. Failure of an owner to pay for services rendered to a tenant in these circumstances may result in service interruptions.

2. Nonrecurring Charges

Tap Fees	$500.00 per SFE*

3. Account Set-up and Reconnection Charges

a. Customer Account Charge - for new customers only.

All areas	$25.00

b. Reconnection Charges: In addition to any other charges that may be due, a reconnection fee of thirty-five ($35.00) shall be due prior to the Utility reconnecting service which as been disconnected for any reason set forth in Commission Rule R.103-732.5. Customers who ask to be reconnected within nine months of disconnectin will be charged the monthly base facility charge for the service period they were disconnected. The reconnection fee shall also be due prior to reconnection if water service has been disconnected at the request of the customer.

4. Billing Cycle

Recurring charges will be billed monthly in arrears. Nonrecurring charges will be billed and collected in advance of service being provided.

5. Extension of Utility Service Lines and Mains

The Utility shall have no obligation at its expense to extend its utility service lines or mains in order to permit any customer to connect to its water system. However, anyone or any entity which is willing to pay all costs associated with extending an appropriately sized and constructed main or utility service line from his/her/its premises to any appropriate connection point, to pay the appropriate fees and charges set forth in this rate schedule, and comply with the guidelines and standards hereof, shall not be denied service, unless water supply is unavailable or unless the South Carolina Department of Health and Environmental Control or other government entity has restricted the Utility from adding for any reason additional customers to the serving water system. In no event will the Utility be required to construct additional water supply capacity to serve any customer or entity without an agreement acceptable to the Utility first having been reached for the payment of all costs associated with adding water supply capacity to the affected water system.

6. Cross Connection Inspection Fee

Any customer installing, permitting to be installed, or maintaining any cross connection between the Utility's water system and any other non-public water system, sewer or a line from any container of liquids or other substances, must install an approved back-flow prevention device in accordance with 24A S.C. Code Ann. Regs. R.61-58.7.F.2 (Supp. 2007), as may be amended from time to time. Such a customer shall annually have such cross connections inspected by a licensed certified tester and provide to Utility a copy of a written inspection report and testing results submitted by the certified tester in accordance with 24A S.C. Code Ann. Regs. R.61-58.7.F.8 (Supp. 2007), as may be amended from time to time. Said report and results must be provided by the customer to the Utility no later than June 30th of each year. Should a customer subject to these requirements fail to timely provide such report and results, Utility may arrange for inspection and testing by a licensed certified tester and add the charges incurred by the Utility in that regard to the customers' next bill.

* A Single Family Equivalent (SFE) shall be determined by using the South Carolina Department of Health and Environmental Control Guidelines for Unit Contributory Loadings for Domestic Wastewater Treatment Facilities - 25 S.C. Code Ann. Regs. 61-67 Appendix A (Supp 2007), as may be amended from time to time. Where applicable, such guidelines shall be used for determination of the appropriate monthly service and tap fee. For water service to customers not described in R. 61-67, such as irrigation service, the tap fees shall be the same as those for one (1) SFE.

EXHIBIT "B"

Agreement for Water Services
Pointe West, Inc.

AGREEMENT FOR WATER SERVICES

POINTE WEST, INC

OCONEE COUNTY, SC

This Agreement is entered into this 26 day of March, 2008 by and between Pointe West, Inc., (hereinafter referred to as "Developer"), and Jacabb Utilities, LLC, a South Carolina corporation (hereinafter referred to as "Utility").

WITNESSETH

WHEREAS, Developer is the owner of or is duly authorized to act on behalf of the owners of certain real estate located off of W. Cherry Road in Oconee County, South Carolina, hereinafter referred to as the "Property" (see "Exhibit 1"); and,

WHEREAS, Developer desires to develop said property which will contain commercial and residential units when completed; and,

WHEREAS, Utility is a public utility engaged in the business of furnishing water services to the public in its designated areas located in South Carolina and subjected to Section 58-5-210 of the Code of Laws of S.C., 1976 which provides: "That the Public Service Commission , is hereby, to the extent granted, vested with power and jurisdiction to supervise and regulate the rates and service of every public utility in this State, together with the power, after hearing, to ascertain and fix such just and reasonable standards, classifications, regulations, practices, and measurements of service to be furnished, imposed, observed and followed by every public utility in this State, and the State hereby asserts its rights to regulate the rates and services of every public utility as herein defined.". The Utility desires to have constructed and installed, and the Developer desires to construct and install, the water distribution facilities to serve the Property subject to the terms and conditions of this Agreement; and

WHEREAS, Developer desires Utility to provide water service within the Property and Utility desires to provide water service according to the terms and conditions of this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants as hereinafter set forth, the parties hereto agree as follows:

ARTICLE I

Representations and Warranties of Developer

Developer represents and warrants that:

1. Developer is the owner of or is duly authorized to act on behalf of the owners of the Property; and,
2. Developer will cooperate fully with the Utility in any and all applications or petitions to public authorities deemed necessary or desirable by Utility in connection with the construction and installation of the Facilities contemplated by this Agreement; and,
3. Developer will convey to the Utility or otherwise vest in the Utility such right, title and interest in and to such real estate as may be reasonably necessary to permit the Utility to carry out the terms and conditions of this Agreement; and,
4. Developer will convey to Utility or provide by recorded subdivision plats such easements or rights of way as the Utility may reasonably require for the Utility's performance of its obligations under this Agreement. Any such plats, conveyances or licenses will be in form reasonably satisfactory to Utility's legal counsel.

ARTICLE II

Obligations and Construction of Facilities by Developer

1. Facilities

   Developer shall construct and install all necessary water distribution facilities to serve the Property, including but not limited to mains, valves, fire hydrants, service laterals, meter boxes, meters, and other facilities as are reasonably required to provide adequate water services (herein referred to as the "Facilities"). Water distribution mains will have a minimum diameter of two and one-half (2.5) inches, except where otherwise approved by Utility.
2. All materials used by the Developer for said Facilities shall be new, first-class, and suitable for the uses made thereof. Developer guarantees all construction, materials, workmanship, and the trouble-free operation of the Facilities (or any portion of the Facilities) for one year after the Facilities (or such portion of the Facilities) are placed in service.
3. All Facilities constructed and installed by Developer pursuant to this Article II shall be constructed and installed without cost or expense to Utility.
4. All plans, specifications and construction of the Facilities shall be in accordance with applicable standards, requirements, rules and regulations of all governmental bodies and regulatory agencies which may have jurisdiction thereover, and shall have received the

written approval of Utility before construction is begun, which approval shall not be unreasonably withheld or delayed.

5. Developer shall save and hold Utility harmless from and against all suits or claims that may be based upon any injury to any person or property that may occur in the course of the performance of the construction of the Facilities by Developer or by anyone acting on Developer's behalf, or under Developer's supervision and control, including but not limited to claims made by employees of Developer, and Developer shall, at its own cost and expense, pay all costs and other expenses arising therefrom, or incurred in connection therewith, including reasonable attorneys' fees.

6. Developer shall obtain, with cooperation from Utility, all requisite permits and zoning and other approvals and all else required to construct the Facilities.

7. All of the Facilities installed by Developer pursuant to this Agreement shall become the property of Utility as installed, including service lines up to and including the water meters for each unit. Developer shall execute all conveyances, licenses and other documents reasonably requested by Utility as necessary or desirable in its opinion to ensure its ownership of, ready access to, and operation and maintenance of the Facilities. Developer shall furnish Utility with lien waivers in a form reasonably satisfactory to Utility's counsel from Developer and from all suppliers, subcontractors and all others who furnish labor, equipment, materials, rentals, or who perform any services in connection with Facilities construction herein. Developer agrees to provide to Utility documentary evidence, in form satisfactory to Utility, sufficient to establish the original cost of the Facilities. Utility shall have, at all times, all right, title, and interest in and to the Facilities.

8. Developer shall, prior to the transfer to Utility of the Facilities, grant permanent, assignable easements satisfactory to Utility, authorizing Utility to own, operate and maintain the Facilities throughout the Property and providing reasonably adequate rights of access and working space for such purposes.

9. Developer shall, upon transfer to Utility of the Facilities, provide to Utility as-built drawings, and all other information reasonably required to operate, maintain, and repair the Facilities.

10. Developer shall not have the right to connect individual lot service connections to the Facilities until such time as the Facilities have been formally accepted by the Utility, written approvals have been received from all governmental bodies and regulatory agencies which may have jurisdiction thereover, and all applicable connection fees have been paid.

11. All connections must be inspected by the Utility prior to backfilling and covering of any pipes. Written notice to the Utility requesting an inspection of a connection shall be

made at least forty-eight (48) hours in advance of the inspection, excluding weekends and official Utility holidays.

12. Should the Developer fail to comply with the foregoing inspection provisions, Utility may refuse service to a connection until such time as the appropriate inspections have been completed.

ARTICLE III

Representations and Warranties of Developer

1. Developer will not, and will not permit by restricted land covenant, any owner of real estate within the Property to construct or maintain any private well in the Property.
2. Neither Developer nor any entity or individual affiliated with Developer has executed or will execute any agreement with any lot purchaser in the Property, or any other parties or made any representations to any such purchasers or other parties whereunder such purchaser or other parties have acquired any interest in Facility to be installed under this Agreement.

ARTICLE IV

Utility Services, Connection Fees, Rates and Charges

1. Upon installation of the Facilities and payment of connection fees, Utility agrees to supply all customers within the Property with adequate and customary water service, and to operate, maintain and repair all Facilities as indicated herein, after acceptance by Utility and issuance of operational approvals by all regulatory authorities.
2. Prior to the commencement of utility service, lot owners within the Property are responsible for the payment to Utility of water tap-on or connection fees, as well as the appropriate Seneca Light & Water tap-on or connection fees at the rate as in effect from time to time prior to the provision of utility service to any lot within the Property. Such fees, usage and all other incidental rates and charges shall be rendered by Utility in accordance with Utility's rates, rules and regulations as approved by the South Carolina Public Service Commission (the "Commission") from time to time and then in effect.

ARTICLE V

Commission Approval

1. Within thirty (30) days following the execution of this Agreement, Utility will file a petition with the Commission requesting approval of this Agreement, if necessary. All

terms and conditions contained herein are subject to Utility receiving said approvals from the Commission.

ARTICLE VI

General

1. Except as provided in this Agreement, neither party to this Agreement shall be liable to the other for failure, default or delay in performing any of its obligations hereunder, if such failure, default or delay is caused by strikes or other labor problems, by forces of nature, unavoidable accident, fire, acts of the public enemy, interference by civil authorities, acts or failure to act, decisions or order or regulations of any governmental or military body or agency, office or commission, delays in receipt of materials, or any other cause, whether of similar or dissimilar nature, not within the control of the party affected and which, by the exercise of due diligence, such party is unable to prevent or overcome, except as otherwise provided for herein. Should any of the foregoing events occur, the parties hereto agree to proceed with diligence to do what is reasonable and necessary so that each party may perform its obligations under this Agreement.
2. Developer acknowledges that Utility's obligation to provide utility service is expressly conditioned upon the parties' mutual understanding that Utility has no obligation to install any additional water storage capacity to serve the Property.
3. The failure of either party hereto to enforce any of the provisions of this Agreement or the waiver thereof in any instance by either party shall not be construed as a general waiver or relinquished on its part of any such provisions, but the same shall, nevertheless, be and remain in full force and effect.
4. The representations, warranties and agreements contained herein shall survive, and continue in effect. Utility agrees to indemnify Developer, its successors and assigns, and hold Developer harmless against any loss, damage, liability, expense or cost accruing or resulting from any misrepresentations or breach of any representation, warranty or agreement on the part of Utility under this Agreement; Developer agrees to indemnify Utility, its successors and assigns, and hold it and them harmless against any loss, damage, liability, expense or cost of Utility, accruing or resulting from any misrepresentation or breach of any representation, warranty, or agreement on the part of Developer under this Agreement or from any misrepresentation in or material omission from any certificate or other document furnished or to be furnished to Utility by Developer.
5. This Agreement sets forth the complete understanding between Developer and Utility, and any amendments hereto to be effective must be made in writing.

6. Notices, correspondence and invoicing required hereunder shall be given to Developer and to Utility at the following addresses, or at any other addresses designated in writing by either party subsequent to the date hereof:

If to Utility:

Jacabb Utilities, LLC
210 W. North Second Street
Seneca, SC 29678
ATTN: Steve Goldie
Managing Owner

If to Developer:

Pointe West, Inc.
391 College Avenue
Suite 406
Clemson, SC 29631
ATTN: Tom Winkopp, President

Delivery when made by registered or certified mail shall be deemed complete upon mailing. Delivery by overnight courier shall be deemed complete when delivered.

7. This Agreement may not be assigned by Developer without the written approval of Utility, which approval shall not be unreasonably withheld. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

8. This Agreement shall be governed by the laws of the State of South Carolina.

9. If this Agreement is not executed prior to _____ then the terms and conditions contained herein will be waived, with no further obligations or responsibilities to either party.

IN WITNESS WHEREOF, the parties hereto have set their seals the day and year above first written.

Jacabb Utilities, LLC

By: _____

Stephen R. Goldie

Its: Managing Owner

Attest:

Sheila Insley

_____

Pointe West, Inc.

By: _____

Tom Winkopp

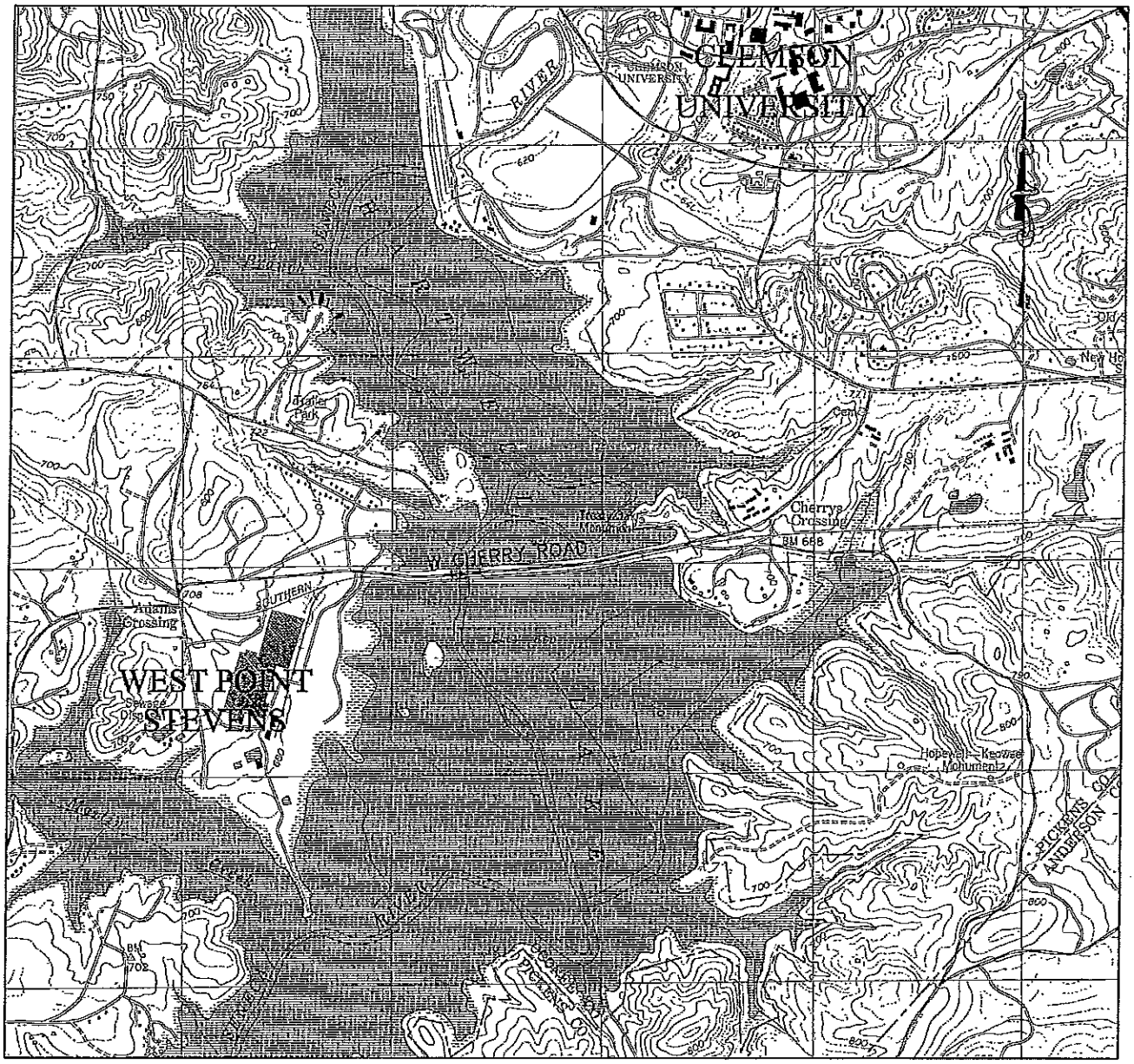
Its: President

Attest:

_____

EXHIBIT 1

VICINITY MAP - NOT TO SCALE



WATER SERVICE CHECKLIST

When any utility makes application for establishment of service area and rates and charges, such application shall contain the following information:

1) Copy of articles of incorporation or partnership agreement;

2) Plat of proposed area to be served;

3) Copy of engineering plans and specifications designed or certified to be in accord with good engineering practices by a professional engineer registered in South Carolina;

4) Construction permit from the Department of Health and Environmental Control approving engineering plans and specifications;

5) Schedule of proposed rates and charges and cost justifications, including tap fees with attached schedules depicting labor costs, materials costs, and miscellaneous costs; ENCLOSED

6) Number of customers proposed to be served and capacity of system; ATTACHED

7) Financial statement showing proposed plant investment by categories; ATTACHED

8) Depreciation schedule by categories of plant or average service lives; ATTACHED

9) Pro forma income and expense statement showing the effect of using the proposed rates based on plant capacity; ATTACHED

10) Filing of performance bond in accordance with 103-712.3.

11) Statement by a professional engineer that the system was built and installed according to plans and specifications on file with the Commission and will furnish adequate service for the area to be served.

12) Letter from Department of Health and Environmental Control approving system for operation, dated not more than six (6) months prior to date of application; and,

13) Customer bill form; and

14) Other pertinent or relevant information determined necessary by the Commission.

15) Signed Agreement with Owner and JACABB Utilities

16) Deed transferring ownership to JACABB Utilities

	Phase I	Phase II & III
Contribution In Aid of Construction	$220,366.00	$111,678.70
Assets	$15,000.00	

Proposed Number of Customers

Phase I - 108 Customers
Phase II - 267 Customers (Total)
Phase III - 333 Customers (Total)

Depreciation	**Cost**	**No. of Years to Depreciate**	**Annual Depreciation**
Meter Reader	$15,000.00	10	$1,500.00

Pro forma Income and Expense Statement

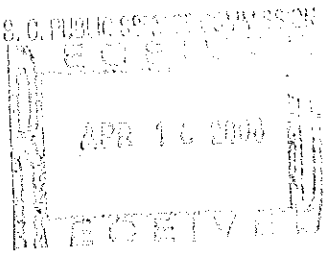
	108 Customers	267 Customers	333 Customers
	Phase I	Phase II	Phase III
Operating Revenues			
Service Revenues	$67,936.32	$167,953.68	$209,470.32
Miscellaneous Revenues	$2,500.00	$5,625.00	$7,500.00
Total Operating Revenues	$70,436.32	$173,578.68	$216,970.32
Expenses			
Operations/Meter Reading/Admin	$6,920.00	$12,840.00	$18,760.00
Maintenance & Repairs	$2,353.66	$6,940.89	$6,940.89
Laboratory	$1,500.00	$1,500.00	$1,500.00
Fees	$6,252.00	$6,252.00	$6,252.00
Purchased Water	$51,477.12	$127,262.88	$158,721.12
Total Operating Expenses	$68,502.78	$154,795.77	$192,174.01
Net Income	$1,933.54	$18,782.91	$24,796.31

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-_____-W



IN RE:

Application of Jacabb Utilities, LLC to request to establish water rates for Jacabb Utilities, LLC and approval of Agreement for Water Services with Pointe West Inc., to serve Highpointe Development in Oconee County	**CERTIFICATE OF SERVICE**

This is to certify that I have caused to be served this day one (1) copy of the **Application** by placing same in the care and custody of the United States Postal Service with first class postage affixed thereto and addressed as follows:

Dukes Scott
Office of Regulatory Staff
Post Office Box 11263
Columbia, SC 29211

Sheila J. Tansley

Seneca, South Carolina
This 17 day of April 2008

The Public Service Commission
State of South Carolina

Charles L.A. Terreni
Chief Clerk/Administrator
Phone: (803) 896-5133
Fax: (803) 896-5246

April 21, 2008

James S. Eakes, Esquire
P.O. Box 1405
Anderson, South Carolina 29622

RE: Application of Jacabb Utilities, LLC to Request to Establish Water Rates for Jacabb Utilities, LLC and Approval of Agreement for Water Services with Pointe West, Inc. to Serve Highpointe Development in Oconee County

Dear Mr. Eakes:

The Commission is in receipt of the Application of Jacabb Utilties, LLC. The "Water Service Checklist" included in the Application notes the documents that have not been included in the Application. A copy of the "Water Service Checklist" is attached. Please notify the Commission and the Office of Regulatory Staff, at your earliest convenience, as to when the Company intends to file the remaining documents with the Commission.

Thank you for your attention to this matter.

Sincerely,

Jocelyn G. Boyd
Deputy Clerk

Enclosure

cc: Florence Belser, Office of Regulatory Staff
Nanette Edwards, Office of Regulatory Staff

WATER SERVICE CHECKLIST

When any utility makes application for establishment of service area and rates and charges, such application shall contain the following information:

1) Copy of articles of incorporation or partnership agreement;

2) Plat of proposed area to be served;

3) Copy of engineering plans and specifications designed or certified to be in accord with good engineering practices by a professional engineer registered in South Carolina;

4) Construction permit from the Department of Health and Environmental Control approving engineering plans and specifications;

5) Schedule of proposed rates and charges and cost justifications, including tap fees with attached schedules depicting labor costs, materials costs, and miscellaneous costs; ENCLOSED

6) Number of customers proposed to be served and capacity of system; ATTACHED

7) Financial statement showing proposed plant investment by categories; ATTACHED

8) Depreciation schedule by categories of plant or average service lives; ATTACHED

9) Pro forma income and expense statement showing the effect of using the proposed rates based on plant capacity; ATTACHED

10) Filing of performance bond in accordance with 103-712.3.

11) Statement by a professional engineer that the system was built and installed according to plans and specifications on file with the Commission and will furnish adequate service for the area to be served.

12) Letter from Department of Health and Environmental Control approving system for operation, dated not more than six (6) months prior to date of application; and,

13) Customer bill form; and

14) Other pertinent or relevant information determined necessary by the Commission.

15) Signed Agreement with Owner and JACABB Utilities

16) Deed transferring ownership to JACABB Utilities

JACABB UTILITIES, LLC

April 24, 2008

Jocelyn G. Boyd
Deputy Clerk
SC Public Service Commission
PO Box 11649
Columbia, SC 29211

RE: Application of Jacabb Utilities, LLC to Request to Establish Water Rate for Jacabb Utilities, LLC and Approval of Agreement for Water Service with Pointe West, Inc. to Serve Highpointe Development in Oconee County

Dear Ms. Boyd:

Listed below are the items and their status from the Water Service Checklist:

1) Copy of articles of incorporation or partnership agreement: - On file with the Commission.
2) Plat of proposed area to be served: - Enclosed with this letter.
3) Copy of engineering plans and specifications designed or certified to be in accord with good engineering practices by a profession engineer registered in South Carolina: - Standard Specifications and Plans for Phase I and Phase II are enclosed with this letter. Future phases can be submitted to the Commission when completed, if required.
4) Construction permit from the Department of Health and Environmental Control approving engineering plans and specifications: - Enclosed with this letter are Construction Permits 25345-WS for Phase I and 25523-WS for Phase II. Future phases can be submitted to the Commission when completed, if required.
5) Schedule of proposed rates and charges and cost justifications, including tap fees with attached schedules depicting labor costs, materials costs, and miscellaneous costs: - Was included as an enclosure with the application package.
6) Number of customers proposed to be served and capacity of system: - Was included as an enclosure with the application package.
7) Financial statement showing proposed plant investment by categories: - Was included as an enclosure with the application package.
8) Depreciation schedule by categories of plant or average service lines: - Was included as an enclosure with the application package.
9) Pro forma income and expense statement showing the effect of using the proposed rates based on plant capacity: - Was included as an enclosure with the application package.
10) Filing of performance bond in accordance with 103-712.3: - On file with the Commission.
11) Statement by a professional engineer that the system was built and installed according to plans and specifications on file with the Commission and will furnish adequate service for the area to be served: - To be submitted when issued.

210 W.N. Second Street · Seneca · SC · 29678 · phone · 864-882-8194 · fax · 864-882-0851

12) Letter from Department of Health and Environmental Control approving system for operation, dated not more than six (6) months prior to date of application: - To be submitted when issued.
13) Customer bill form: - To be submitted later.
14) Other pertinent or relevant information determined necessary by the Commission: N/A
15) Signed Agreement with Owner and Jacabb Utilities: - Was included as an exhibit with the application package.
16) Deed transferring ownership to Jacabb Utilities: - Water lines and appurtenances will be transferred by bill of sale and a conveyance form will be executed and recorded upon completion of as-built drawings and submitted at that time.

Please let us know if you have any questions or need additional information.

Sincerely,

JACABB UTILITIES, LLC

Stephen R. Goldie
Managing Owner

Enclosures

cc: Office of Regulatory Staff
Steve Eakes, Esquire

D H E C

PROMOTE PROTECT PROSPER

RECEIVED
12/21/06

BUREAU OF WATER

December 19, 2006

BILLY BOLGER, PE
GOLDIE & ASSOCIATES
210 W NORTH SECOND ST
SENECA, SC 29678

RE: Standard Specifications for Water System
GOLDIE & ASSOCIATES

This office has reviewed the water system specifications submitted to this office on 11/24/2004 for consideration of becoming Standard Specifications. Based on our review this letter may serve as your approval of these Standard Specifications. The specifications have been approved for the following:

1. DISTRIBUTION LINES (PVC, DIP)

Please be advised that these Standard Specifications are only approved for those items specifically listed above.

For further submittals of projects, please indicate on the application for permit to construct that your specifications have been approved as Standard Specifications and that no additional copies will be necessary.

If you have any questions, please call me at 803-898-4150.

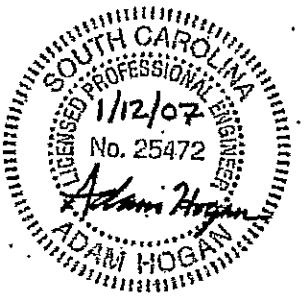
Sincerely,

Justin Butler

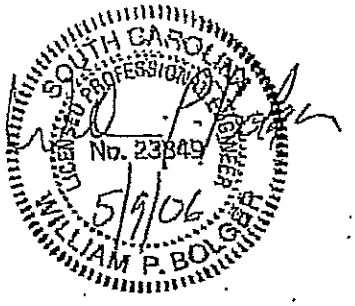
Justin Butler
Construction Permitting Section
Stormwater, Construction, and Agricultural Permitting Division

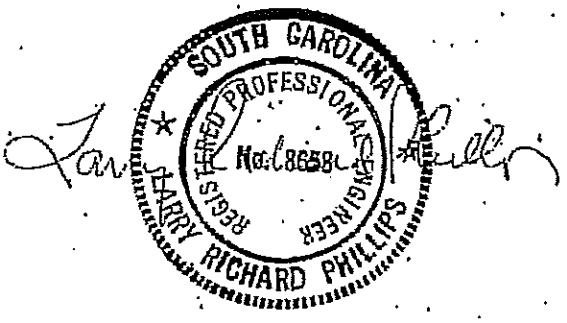
Standard Construction Specifications
For Water Systems

Revised May, 2006



Prepared By:
Goldie and Associates
210 W. North Second Street
Seneca, SC 29678
(864) 882-8194





SC DEPT. of HEALTH & ENVIRONMENTAL CONTROL
BUREAU OF WATER
STANDARD SPECIFICATIONS APPROVAL
WATER SYSTEMS ☑ SEWER SYSTEMS ☐
DATE APPROVED: 12-19-06
APPROVED BY: JS
APPROVED FOR: Distribution Lines

Table of Contents

EXCAVATION AND BACKFILLING FOR UTILITIES

1. General. This section includes the furnishing of all labor, materials and equipment required for excavation, trenching and backfilling for all under ground utilities outside of buildings.

2. Excavation. The CONTRACTOR shall perform all excavation of every description of whatever substances encountered, to the depths indicated on the plans or as otherwise specified. During excavation, material suitable for backfilling shall be piled in an orderly manner, a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. OSHA regulations shall govern. All excavation shall be dewatered properly before laying pipe.

   2.1 Bracing and Shoring. The CONTRACTOR shall do all bracing, sheathing and shoring necessary to perform and protect all excavations as indicated on the plans, as required for safety, as directed by the ENGINEER, or to conform to governing laws.

   2.2 Trench Excavation. The bottom of the trenches shall be graded in such a manner as to provide a firm bearing for the pipe. The use of boards or other material to support the pipe will not be permitted. Any soft or unstable foundations encountered shall be removed and replaced with suitable material, thoroughly compacted, at the CONTRACTOR's expense. Since pipe may not lay on rock, any rock encountered shall be over-excavated six (6) inches and backfilled to provide suitable bedding.

   Where trenching is adjacent to slopes, either cuts or fills, the CONTRACTOR will not be permitted to level or alter or otherwise damage these slopes for the purpose of using any equipment such as trenching machines or back-hoes, unless the ENGINEER otherwise approves it in writing.

   2.3 Excavation Below Grade. In cases where the excavation is carried beyond or below the lines and grades given by the ENGINEER, the CONTRACTOR shall, at his/her expense, refill all such excavated space with suitable material as approved by the ENGINEER.

2.4 Excavation for Manholes, Junction Boxes, Valve Pits and Other Appurtenances. In order to permit proper compaction of the backfill material, the excavation for manholes, junction boxes, valve pits and other structures shall be made to a diameter of at least six (6) inches on each side of the structure.

2.5 Rock Excavation. Wherever "rock" is used as the name of an excavated material, it shall mean boulders or pieces of rock, concrete, or masonry measuring one-half (1/2) cubic yard or more, hard shale or solid ledge rock and masonry which, in the opinion of the ENGINEER, requires for its removal the continuous use of pneumatic tools or drilling and blasting. Rock excavation includes removal and disposal of rock material and obstructions encountered that cannot be removed by the following heavy-duty rock excavation equipment or without drilling, blasting, or ripping. Rock excavation equipment shall be equivalent to Caterpillar Model 320 CL track mounted hydraulic excavator equipped with a 42" wide short-tip radius rock bucket. No payment will be made for rock excavation unless the ENGINEER approves such payment in writing. The ENGINEER must be given ample notice to measure all rock after it has been stripped and before it is blasted. Driller's logs shall not be acceptable for rock measurement. No payment will be made for any rock blasted before such measurement is made. Rock excavation will be measured for payment for a width equal to the outside diameter of the pipe bell plus twelve (12) inches, the sides of the trench being considered vertical, and to a depth of six (6) inches below the bell of the pipe laid on the grade established by the ENGINEER.

3. Blasting. All blasting operations shall be in strict accordance with all state and county regulations and only after approval of the ENGINEER. The CONTRACTOR shall be wholly responsible for any damage done and immediate settlement of such damages shall be made. Copies of the blasting permit shall be provided to the engineer prior to blasting.

4. Dewatering Excavations. All excavations shall be free of water which will prevent proper placement of utilities to be placed therein. All surface water shall be diverted away from the trench. Where running sand is encountered, dewatering shall be done by well pointing whenever possible.

Where soil conditions are not favorable for use of well points, french drains of crushed stone or gravel shall be constructed to suitably located sumps and the water removed by bailing or pumping. All costs of equipment, labor and materials, if required for dewatering, shall be included in the prices bid for facility being installed.

5. Specific utilities shall have special requirements relating to excavation.

   5.1 Water Supply Pipes. All water piping shall have a minimum of thirty-six (36) inches of soil cover. Where this is not possible, ductile iron pipe shall be used. Insulation shall be used, where necessary, to prevent freezing.

   Open ends of pipe shall be plugged with a standard plug or cap at all times when pipe laying is not in progress. Trench water shall not be permitted to enter pipe.

   5.2 Sanitary or Storm Sewer Piping. The minimum amount of cover for sanitary or storm sewer piping shall be that as shown on the approved plans, but in no case less than thirty-six (36) inches of soil cover. Where this is not possible, ductile iron pipe shall be used. Trench excavation shall not advance more than one hundred (100) feet along existing streets and not more than two hundred (200) feet in other areas ahead of pipe laying unless approved by the ENGINEER.

6. Backfilling. All trenches and excavations shall be backfilled immediately after the pipes are laid therein, unless other protection of the pipe line is directed. The backfill material shall be selected and deposited with special attention to proper bedding of the pipe. Stones, other than crushed bedding, shall not come in contact with the pipe and shall not be within six (6) inches of pipe.

   Except where special methods of bedding and tamping are provided for, clean earth, sand or rock shall be solidly tamped about the pipe. The remainder of the backfill material shall be deposited in layers not exceeding six (6) inches in thickness and properly tamped. Where backfilling material is too wet for satisfactory tamping, the material shall be allowed to dry or dry material shall be hauled in. The CONTRACTOR will be held responsible for settlement over

all trenches and, where necessary, he/she shall add material which shall be thoroughly tamped. Excavated rock shall not be mixed with material selected for the tamped backfilling under and around the pipe up to a level of at least six (6) inches above the pipe, nor with backfilling material used to complete the final twelve (12) inch backfill layer at original ground surface.

6.1 Under Roads and Other Paved Areas. All backfilling of excavated portions requiring pavement replacement shall be mechanically tamped in six (6) inch layers, using heavy duty tampers, such as pneumatic tampers with tamping foot attachment. Each layer shall be thoroughly tamped to a density equivalent to at least ninety-five percent (95%) of an AASTHO T-99-49 Proctor Curve.

6.2 Backfilling in Wooded, Swampy or Undeveloped Areas. Where called for on the plans, those areas where pipe sewers are crossing open areas where early settlement is not critical, backfill from twelve (12) inches from the top of the pipe to the surface, shall be made by any acceptable method which will not dislodge or damage the pipe or cause bridging action in the trench. Only selected material free from clods or stones shall be used in backfilling up to twelve (12) inches above the top of the pipe. Excess material shall be neatly rounded over the top of the trench as directed by the ENGINEER to allow reshaping of the surface to level out any uneven settlement that has occurred.

6.3 Backfilling PVC Pipe. When PVC pipe is installed, a #12 AWG or larger coated copper wire shall be attached to the top of the pipe to aid in future location. The pipe shall be detectable within three (3) feet with electronic equipment.

7. Settlement. Whenever the trenches have not been properly filled, or if settlement occurs, they shall be refilled, smoothed off and finally made to conform to the surface of the ground. Backfilling shall be carefully performed and the original surface restored to the full satisfaction of the ENGINEER.

8. Payment. No direct payment will be made for excavation, bracing and shoring, blasting, dewatering excavations, bedding, backfilling or topsoil surfacing, the cost of same shall be included in the unit price for the utility line to

which it pertains. Excavation in solid rock will be paid for at the unit price per cubic yard. Cutting, removing and replacing existing pavement will be paid for at the unit price as stated in the Proposal.

9. Separation of Water and Sewer Lines. Separation shall be maintained in accordance with Regulation 67-300 (A) (12).

9.1 Potable Water Supply Interconnections. There shall be no physical connections between a public or private potable water system and a sewer, or appurtenance thereto which may permit the passage of any sewer or polluted water into the potable water supply. No potable water pipe shall pass through or come in contact with any part of a sewer manhole.

9.2 Horizontal Separation of Sewer Lines and Water Mains. Whenever possible, water mains shall be laid at least ten (10) feet, horizontally, from any existing or proposed sewer line as measured from edge to edge of pipe. Sewer lines shall be laid at least 10 feet from any existing water lines. Should local conditions prevent a lateral separation of 10 feet, a sewer main may be laid closer than 10 feet to a water line if:

a. It is laid in a separate trench; or

b. It is laid in the same trench with water mains located on an undisturbed earth shelf located on one side of the sewer and eighteen (18) inches below the water main.

c. In either case the elevation of the crown of the sewer is at least eighteen (18) inches below the invert of the water main.

d. In either case, the distance between the water main and sewer line must be maximized, and the joints of the water main and sewer line shall be offset to keep them as far apart as possible.

9.3 Vertical Separation of Sewer Lines or Forcemains and Water Mains. Whenever a water main must cross over sewer lines or forcemains, the water main shall be laid at such an elevation that the top of the sewer or forcemain is at least eighteen (18) inches below the bottom of the water main as required in Regulation 61-58 (D) (12) (a) and (b). A full length of pipe shall be used for both the water main and sewer line, and the pipes shall be centered so that the joints of each line

will be as far as possible from the point of crossing.

9.4 Where Above Separations of Sewer and Water Mains Cannot Be Maintained. When it is impossible to obtain proper horizontal or vertical separation as stipulated in 9.2 or 9.3 above, the portion of the new water main with inadequate separation shall be constructed of slip-on or mechanical joint ductile iron pipe compliant with Goldie & Associates specification section 2660 #2.1. Both services shall be pressure tested to assure a watertight installation. Distance between the water and sewer mains shall be maximized. Maximum joint spacing shall be allowed as well. Sufficient distance shall be allowed to make repairs to either line without damaging the other. This requirement shall apply to gravity sewers, as well as forcemains. When it is impossible to maintain the distances specified in Regulation 61-58 (D) (12) (a) and (b) the Department may allow an alternative design: use materials which meet the requirements of Regulation 61-58.4 (D) (1) for the sewerline.

9.5 Separation of Sewer Manholes and Water Mains. No water pipe shall pass through or come in contact with any part of a sewer manhole. Water lines may come in contact with storm sewers or catch basins if there is no other practical alternative, provided that ductile iron is used, no joints of the water line are within the storm sewer or catch basin and the joints are located as far as possible from the storm sewer or catch basin.

9.6 Separation of Tile Fields and Water Mains. Potable water lines shall not be laid less than 25 feet horizontally from any portion of wastewater tile- field or spray field, or shall be otherwise protected by an acceptable method approved by the Department. All water mains shall be located out of all contaminated areas. If pipes cannot be rerouted to avoid such areas, DIP with chemical-resistant gaskets shall be used. If the main must run through a contaminated site, or within 25 feet of a tile/spray field, ductile iron shall be used, and the number of joints within the contaminated site (or within the 25 foot buffer) shall be minimized.

9.8 Separation of Storm Sewers and Water Mains. Water lines may come into contact with storm sewers or catch basins provided that ductile iron is used, no joints of the water line are within the storm sewer or catch

basin, and the joints are located as far as possible from the storm sewer or catch basin.

10. Water Crossings

10.1 Above-water Crossings. The pipe shall be adequately supported and anchored, protected from damage and freezing, and accessible for repairs and replacement.

10.2 Underwater Crossings. A minimum of 2 feet of cover shall be placed over the pipe. When crossing water courses that are greater than 15 feet, the following shall be provided:

a. The pipe material and joints shall be designed appropriately.
b. Valves shall be located so the section can be isolated for testing and repair; the valves (on both sides of the crossing) shall be easily accessible and not subject to flooding.
c. A blow-off shall be provided on the side opposite the supply service sized in accordance with Section R.61-58.4.(D)(7). Direct away from streams, over ground.
d. Use ductile iron pipe with mechanical joints for any lines being installed in rock.

TEST WELLS (TYPE I)

1.0 General. The Contractor shall furnish all labor, tools, and equipment necessary to construct, develop and test a Type I potable water supply well in accordance with the plans and specifications. The Contractor shall procure all permits, certificates, and licenses required by law for the execution of his/her work. The contractor shall comply with all federal, state, and local laws, ordinances, or rules and regulations relating to the performance of the work.

2.0 Submittals. The Contractor shall submit documents to the Engineer to record the following for each well:

Casings: Material, diameter, thickness, weight per foot of length, and depth below grade.
Pumping Test: Static water level, maximum safe yield, and drawdown at maximum yield.
Log: Formation log indicating strata encountered, penetration rate, and any geophysical/mechanical information that may be required.
Field Reports describing substrate formation, water bearing formations, pilot hole water levels (if applicable), and acceptance test data.

3.0 Standards. The Contractor shall comply with AWWA 100 and the South Carolina drinking water regulations.

4.0 Products.

4.1 Well Casings. Steel pipe and couplings with threaded joints. Casings shall be new casings bearing mill markings and conforming to standard specifications (ASTM A-53) for water well pipe. Use Schedule 40, Grade A, galvanized steel pipe. Threaded and coupled joints shall be API or equivalent.

4.2 Grout. Cement shall be ASTM C 150, Type II. Aggregates shall be ASTM C 33, fine and coarse grades. Only potable water shall be used.

4.3 Lead Free Requirements. No material containing more than 8% lead shall be used in the completed well.

5.0 Drilling shall be accomplished by a South Carolina certified well driller. Care shall be taken during drilling to prevent contamination to any aquifer. Water used in the drilling process shall be disinfected potable water meeting drinking water standards for all parameters. Additives shall comply with recognized industry standards and practices for construction of drinking water wells and shall be used as prescribed by the manufacturer. The well must be protected from the 100-year flood.

5.1 Samples. The Contractor shall take samples of substrata formation at 10-foot intervals and at changes in formation throughout the entire depth of each well. Carefully preserve samples on-site in glass jars properly labeled for identification.

5.2 Water samples. The Contractor shall furnish samples of water to a State certified testing laboratory for analysis. All samples shall be properly labeled with well ID number, date & time collected, name of sample collector, contractor, and owner.

5.3 Bacteriological analysis. Two samples, taken at least 24 hours apart, are to be collected for bacteriological analysis after the well has been disinfected as described in this specification. Prior to sampling, the well shall be pumped until no chlorine residual is detectable. All samples must be reported with the final well application.

The well cannot be accepted as a drinking water supply well unless both samples show the absence of total coliform bacteria. In addition, non-coliform growth cannot exceed 80 colonies per 100 ml for sample results to be valid. Chlorine residual and non-coliform growth must be reported for the two samples described above.

Chemical and radiological analysis. One set of samples shall be collected for the parameters listed in DHEC regulation R.61-58.5. This includes primary drinking water parameters (inorganic chemicals, synthetic organic chemicals, VOCs, naturally occurring and man/made radionuclides, and turbidity) secondary drinking water parameters, water quality parameters related to corrosivity (alkalinity, calcium hardness, conductivity, and temperature), and sodium. SEE APPENDIX A FOR COMPLETE LIST OF PARAMETERS.

Temperature, pH, and chlorine must be measured in the field using certified methodology. Other samples are

to be collected in sample containers provided by the laboratory performing the analysis. Samples shall be iced down in a cooler and delivered to a State certified laboratory no more than 30 hours after collection.

5.4 Drill test well hole and install permanent casing and grout. Provide first section of casing with hardened steel driving shoe of an outside diameter slightly larger than casing couplings where threaded couplings are used.

5.5 Set casing and liners round, plumb, and true to line. Ream ends of pipe and remove burrs. Remove scale, slag, dirt, and debris from inside and outside of casing before installation. Bevel ends of casing. Thread according to ASME B1.20.1. Apply tape or compound to external threads. Join and tighten firmly so that joints are watertight and have the same structural integrity as the casing.

Drive casing into bedrock. Where bedrock is encountered at less than 20 feet, at least 20 feet of casing shall be used. The top of the outside casing shall extend 18 inches above the ground.

5.6 Grouting. The Contractor shall notify the engineer and SC DHEC a minimum of three (3) days prior to the time of grouting. Sand-cement 2-1-7 or Betonite Mix 3 to 5-7 will be used for grouting.

Mix grout with proportions of 1 cu. ft. (94 lb sack) of cement with 5 to 6 gallons of water. Sand may be added in amounts of 1 lb of sand per lb of cement.

Place grout continuously, from bottom to top surface, to ensure entire filling of annular space in one operation. Grout shall be placed by tremie pipe either by pouring or forced injection, after water or other drilling fluid has been circulated in the annular space sufficiently to clear all obstructions. There shall be a minimum annular space of 3 inches for gravity feed and 1.5 inches for forced injection between the outside surface of the casing and the formation. The minimum size tremie pipe shall be 2 inches I.D. for gravity feed and 1 inch I.D. for forced injection. When placing the grouting material, the tremie pipe shall be lowered to the bottom of the zone to be grouted and raised slowly as the grout material is introduced. The

tremie pipe shall be kept full continuously from start to finish, with the discharge end of the tremie pipe being continuously submerged in the grout until the zone to be grouted is completely filled.

Length of Grout. The minimum length of grout shall be to 50 feet or firm bedrock, whichever is less. However, where bedrock is encountered at less than 20 feet, at least 20 feet of casing shall be used and the entire length of the casing shall be grouted.

Do not perform other operations in the well within 72 hours after grouting of casing. When quick-setting cement is used, this period may be reduced to 24 hours.

5.7 Well Development. The Contractor shall develop wells until extracted water has a turbidity of less than 5 NTU (unless it can be demonstrated that the turbidity is due to the natural water quality of the aquifer) and contains a maximum sand content of 5 milligrams/liter when pumped at the maximum testing rate.

6.0 Performance Testing. The Contractor shall conduct final pumping tests after wells have been constructed, cleaned, developed, and disinfected.

6.1 Arrange to conduct test at least three (3) days prior to the time of the pumping test by notifying the engineer and SC DHEC.

6.2 Provide discharge piping to conduct water to locations where disposal will not create a nuisance or endanger adjacent property. Proper measures shall be taken for erosion control.

6.3 Provide and maintain equipment of adequate size and type for measuring flow of water and water level in well. Provide a variable capacity test pump(s) with capacity equal to maximum expected yields at a pressure equal to the maximum drawdown in the well, plus losses in pump columns and discharge pipes.

6.4 24-hour Pump Test. Pump continuously at the maximum capacity of the well for 24 hours. The well will be considered to be at maximum capacity when the drawdown is 60 inches above the top of suction screens. Record pumping rate and water level measurements every 15 minutes for the first 3 hours and at least hourly for the remainder of the test. Also record the time the

test was started, weather conditions, method of measuring the pumping rate and water level, and the name of the person(s) conducting the test.

Interruptions. Whenever there is an interruption in pump operation for a period greater than 1% of the elapsed pumping time, the test shall be suspended until the water level in the pumped well has recovered to the static level. The test must be restarted and run for the full 24 hours.

6.5 Record returning water levels in wells and plot curves of well-recovery rates. Measure water levels every 15 minutes for the first 3 hours following the end of the pumping test and hourly thereafter until water levels return to original level (or for a maximum period of 24 hours).

6.6 Pumping test records. In addition to submitting a copy of the pumping test records to the engineer, submit two copies to SC DHEC. DHEC must receive these records before the permanent pump may be installed. The pumping test records shall include:

6.6.1 The time the test was started;
6.6.2 The method used to measure the pumping rate and water level;
6.6.3 All pumping rate and water level measurements taken;
6.6.4 The name of the person(s) conducting the test;

7.0 Other Submittals to SC DHEC. In addition to the pumping test records, also submit two copies to SC DHEC of the following:

7.1 DHEC Form 1903 - Water Well Record;
7.2 Drillers log;
7.3 Penetration rate log (if required by DHEC); and
7.4 Geophysical/mechanical logs (if applicable).

DHEC must receive these records before the permanent pump may be installed or construction begins on the water treatment and distribution facilities.

8.0 Cleaning and Disinfection. The Contractor shall remove all oil, grease, soil, etc. from the well. Swab casings using alkalis, if necessary, to remove foreign substances. Disinfect wells according to AWWA A100, AWWA C654, and South

Carolina drinking water regulations [R.61-58.2(B)(13)]. A chlorine concentration of 50 ppm must be achieved throughout the entire depth of the well. After a contact period of 24-hours, the well shall be pumped to remove the chlorinated water. The disposal point for the purged water shall be selected so as to avoid damage to aquatic life or vegetation.

The well shall be disinfected twice during test well installation. Once after construction of the well and cleaning procedures have been completed and once after conclusion of the performance testing and sampling. The well shall then be capped with a watertight cap (with no holes) and protected from vandalism.

The well must be temporarily capped and sealed after drilling.

9.0 Well Identification Plate. The well(s) shall be equipped with an identification plate meeting the following requirements:

9.1 Materials. The identification plate shall be constructed of a durable, weatherproof, rustproof metal or equivalent material.

9.2 Attachment. The identification plate shall be attached to the well casing or concrete pad around the casing where it is readily visible.

9.3 The identification plate shall be stamped with a permanent marking to show the following information:

9.3.1 Drilling contractor and registration number;
9.3.2 Date well completed;
9.3.3 Total depth of well (in feet);
9.3.4 Casing: Depth (ft), Inside Diameter (inches);
9.3.5 Yield expressed in gpm or specific capacity expressed in gallons per minute per foot of drawdown (gpm/ft,-dd);
9.3.6 Static water level and date measured; and
9.3.7 Latitude and Longitude (to the nearest second).

10.0 Test Well Abandonment. A well that does not meet required yields or water quality is to be abandoned. Abandonment shall be carried out by a certified well driller.

10.1 Abandonment Procedure. The well to be abandoned shall

be filled with neat cement, sand-cement, or concrete from the bottom of the well to within five (5) feet of the surface. The top five feet may be replaced with soil suitable for surrounding vegetation. The grout mixtures shall be as specified in section 5.6 above. Grout shall be placed continuously, from bottom to top surface, to ensure entire filling of the well in one operation. Grout shall be placed by tremie pipe either by pouring or by forced injection. The minimum size tremie pipe shall be 2 inches I.D. for gravity feed and 1 inch I.D. for forced injection.

In deep bedrock wells, the entire borehole need not be filled with grout as long as the seal has not tapped multiple aquifers of significantly different water quality, and all ground water produced meets drinking water regulations. In this case, a bridge or plug can be placed in the borehole at least 10 feet below the top of firm bedrock. Grouting will begin at this bridge. However, preapproval must be obtained from the engineer before using a bridge or plug.

10.2 Well Abandonment Records. Before the equipment is removed from the site, the exact location of the abandoned well or hole shall be accurately surveyed and a record made to the location with respect to several fixed reference points. All information relative to the abandonment process, location, depth, and diameter of the well or hole shall be supplied in writing to the owner and to SC DHEC.

APPENDIX A

Primary Drinking Water Standards

DRINKING WATER QUALITY SAMPLING OF NEW PUBLIC WATER SUPPLY WELLS

January 2004
Based on R.61-58, September 2003 version

All new wells serving "community" and "non-transient non-community" water systems must be sampled and analyzed for the drinking water quality parameters included in Tables 1, 2 and 3 below. The samples must be analyzed by a certified laboratory. The results of these analyses must be included in the follow-up application for a "test well" permit or with the engineer's certification letter if the well construction project is permitted in one step. Please refer to Section R.61-58.1(B)(8) of the State Primary Drinking Water Regulations concerning the steps involved in the permitting of new groundwater sources.

All new wells serving "transient non-community" and "state" water systems must be sampled and analyzed for total coliform, nitrate, pH, alkalinity, iron and manganese. Those in the coastal districts must also test for sodium chloride and fluoride. Also, all screened wells must test for turbidity and sand content. The Department may require other parameters on a case by case basis. The samples must be analyzed by a certified laboratory. The results of these analyses must be included in the follow-up application for a "test well" permit or with the engineer's certification letter if the well construction project is permitted in one step. Please refer to Section R.61-58.1(B)(8) of the State Primary Drinking Water regulations concerning the steps involved in the permitting of new groundwater sources.

Due to an increase in the number of labs certified to perform the radiological testing, the South Carolina Department of Health and Environmental Control (Department) will no longer be responsible for collecting and analyzing the initial required radiological samples for new public water supply wells on "community" water systems.

The definition for "community", "non-transient non-community", "transient non-community" and "state" water systems may be found in section R.61-58(B) of the State Primary Drinking Water Regulations.

Unless otherwise specified, the unit of measure for each of the maximum contaminant levels (MCL) listed in the following tables is in milligrams per liter (mg/l).

The information in this document is compiled entirely from R61-58.5 titled, Maximum Contaminant Levels in Drinking Water.

Table 1

Primary Drinking Water Parameters

Inorganic Chemicals (IOC)

Contaminant	MCL	Contaminant	MCL
Arsenic	0.010[1]	Fluoride	4.0
Asbestos (10 µm)	7 MFL[2]	Lead	TT[3]
Antimony	0.006	Mercury	0.002
Barium	2.0	Nitrate	10
Beryllium	0.004	Nitrite	1
Cadmium	0.005	Total Nitrate and Nitrite	10
Chromium (total)	0.1	Selenium	0.05
Copper	TT[3]	Thallium	0.002
Cyanide (as free Cyanide)	0.2		

Synthetic Organic Chemicals

Contaminant	MCL	Contaminant	MCL
Alachlor	0.002	Dalapon	0.2
Atrazine	0.003	Di(2-ethylhexyl)adipate	0.4
Carbofuran	0.04	Di(2-ethylhexyl)phthalate	0.006
Chlordane	0.002	Dinoseb	0.007
Dibromochloropropane (DBCP)	0.0002	Diquat	0.02
Ethylene dibromide (EDB)	0.00005	Endothall	0.1
Heptachlor	0.0004	Endrin	0.002
Heptachlor epoxide	0.0002	Glyphosate	0.7
Lindane	0.0002	Hexachlorobenzene	0.001
Methoxychlor	0.04	Hexachlorocyclopentadiene	0.05
PCBs	0.0005	Oxamyl (vydate)	0.2
Pentachlorophenol	0.001	Picloram	0.5
Toxaphene	0.003	Simazine	0.004
Benzo(a)pyrene (PAHs)	0.0002	2,3,7,8-TCDD (Dioxin)	30.0 pg/L[4]
		2,4-D	0.07
		2,4,5-TP (Silvex)	0.05

Primary Drinking Water Parameters (Continued)

Volatile Organic Chemicals (VOC)

Contaminant	MCL	Contaminant	MCL
Benzene	0.005	trans-1,2-Dichloroethylene	0.1
Carbon tetrachloride	0.005	Trichloroethylene	0.005
cis-1,2-Dichloroethylene	0.07	Vinyl chloride	0.002
Dichloromethane	0.005	Xylenes (total)	10
Ethylbenzene	0.7	1,1-Dichloroethylene	0.007
Monochlorobenzene (chlorobenzene)	0.1	1,1,1-Trichloroethane	0.2
o-Dichlorobenzene	0.6	1,1,2-Trichloroethane	0.005
para-Dichlorobenzene	0.075	1,2-Dichloroethane	0.005
Styrene	0.1	1,2-Dichloropropane	0.005
Tetrachloroethylene	0.005	1,2,4-Trichlorobenzene	0.07
Toluene	1		

Naturally Occurring Radionuclides[5]

Contaminant	MCL
Radium 226 and Radium 228	5 pCi/L[6]
Gross Alpha particle activity (including radium-226 but excluding radon and uranium)	15 pCi/L[6]

Man-Made Radionuclides[5]

Contaminant	MCL
Beta particle and photon activity	4 mrem/yr[7]

Microbiological

Contaminant	MCL
Total Coliform	a[8]
Turbidity	TT[9]

Table 2

Secondary Drinking Water Parameters

Contaminant	MCL	Contaminant	MCL
Aluminum	0.05 to 0.2	Iron	0.3
Chloride	250	Manganese	0.05
Color	15 color units	PH	6.5 - 8.5
Copper	1	Silver	0.1
Corrosivity	Non- Corrosive	Sulfate	250
Fluoride	2.0	Total Dissolved Solids (TDS)	500
Foaming Agents	0.5	Zinc	5
		Odor	3 t.o.n.[10]

Table 3

Other Water Quality Parameters

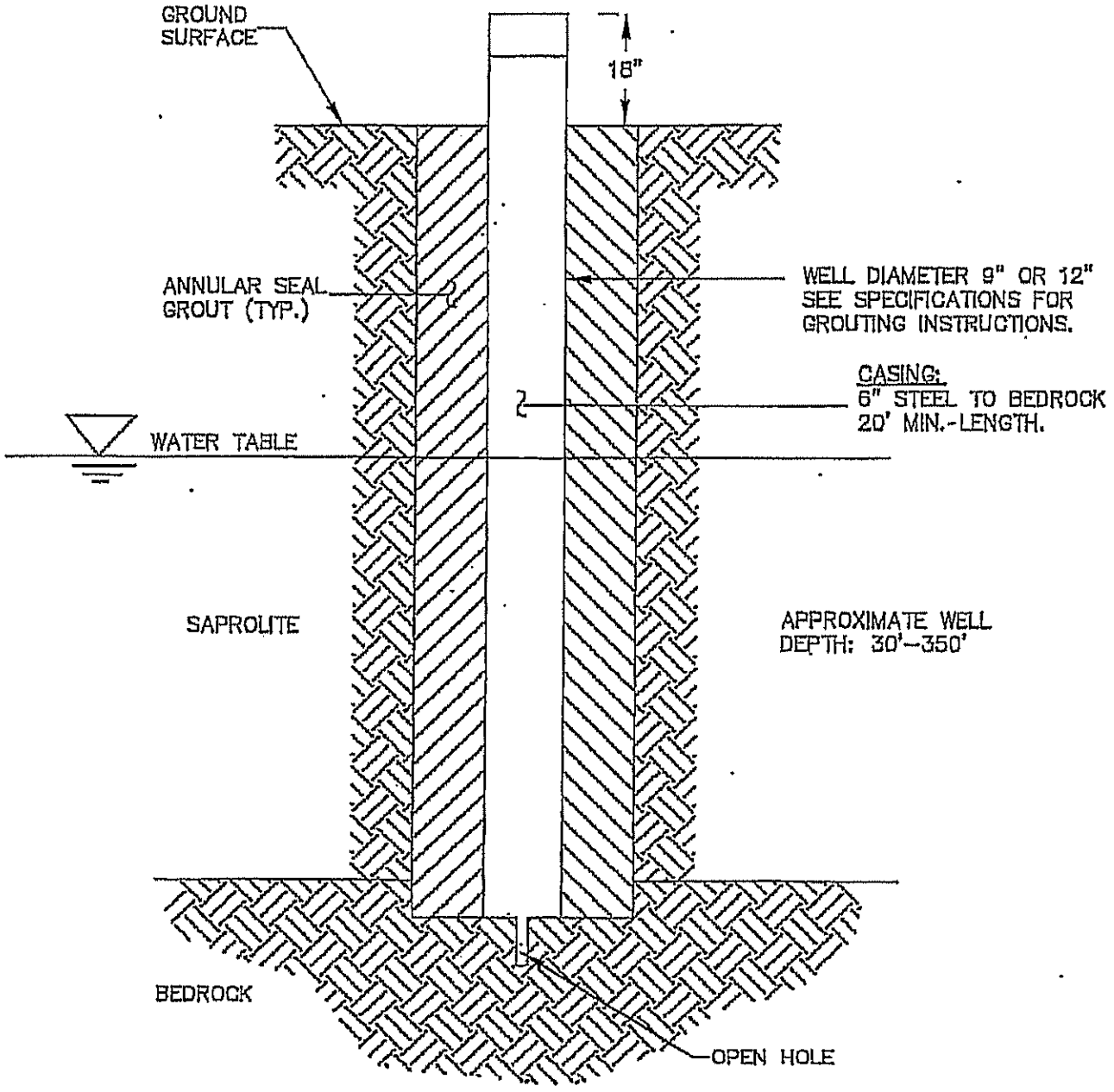
Contaminant	MCL
Alkalinity	None
Calcium Hardness	None
Conductivity	None
Sodium	None[11]
Temperature	None

1. The MCL for arsenic is 0.05 milligrams per liter (mg/L) for all public water systems until January 23, 2006.
2. The unit of measure is million fibers/liter (longer than 10µm).
3. Treatment Technique as outlined in the Lead and Copper Rule.
4. The unit of measure is in picograms per liter. Monitoring for dioxin may be waved by the Department if the design engineer can certify that the well is not within 1000 feet of a pulp and paper manufacturing facility, wood treatment facility, municipal or industrial waste incineration facility, military installation, and chemical plant or site where 2,4,5 trichlorophenol (Silvex) or hexachlorophene was manufactured and/or disposed of (this would include but not be limited to any municipal or county landfill or disposal site).
5. Radiological testing is required for "community" water systems only.
6. The unit of measure is in picocuries per liter
7. The unit of measure is in millirem per year

8. In accordance with the Total Coliform Rule, no more than 5% of the samples per month may be positive. For systems collecting fewer than 40 samples per month, no more than 1 sample per month may be positive.
9. Treatment Technique as outlined in the Surface Water Treatment Rule
10. Threshold odor number
11. There is no MCL for sodium. However, community water systems are required to monitor for sodium (annually for systems which utilize surface water and every three years for system utilizing groundwater) and notify the Department of the sodium levels within three months of receiving the results.

APPENDIX B

Well Profile Detail



TYPE 1 TEST WELL DESIGN

N.T.S.

WATER SUPPLY WELL (TYPE I)

1. General. The Contractor shall furnish all labor, tools and equipment necessary to complete a pump and water system installation in a Type I well in accordance with the plans and specifications.

2. Well Pumps, Pipe, and Appurtenances. The Contractor shall furnish all materials, labor, transportation, tools and equipment to install a submersible pump. Include ASTM A 53, Schedule 40, Grade A, galvanized steel column pipe and threaded coupling. Pipe shall bear mill markings.

3. Surface Completion. The Contractor shall provide permanent casing with a watertight well cap. The cap shall prevent the entrance of water regardless of vibration or movement of conductors or cables. The casing shall also be included with an air vent that is elbowed downward and screened. A pressure gauge and air line shall be provided to allow water level in the well to be measured.

   The outside casing shall be sealed to, and centered in, a reinforced concrete pad having a minimum strength of 2000 pounds per square inch, a minimum radius of three (3) feet, and a minimum thickness of four (4) inches. The concrete pad shall be constructed with a slope so that water will drain away from the casing.

4. Discharge Piping. Discharge piping shall match that shown on the design drawings, and shall include the following items:

   pressure gauge
   check valve
   water sampling tap
   flow meter
   shut off valves

5. Lead free Requirements. No material containing more than eight percent (8%) lead shall be used in the completed well. Solder and flux shall contain less than two-tenths percent (0.2%) lead.

6. Electrical. All electrical wiring shall be in a conduit and shall meet the requirements of the National Electric Code. An hour meter shall be provided for each well pump.

7. Pump Controls. A hand-off-auto control switch shall be provided for each well pump. An adjustable pressure switch shall be provided for automatic control and shall be set for the settings shown on the plans.

8. Disinfection and Sanitation. The pump shall be thoroughly scrubbed and cleaned before being installed. Afterward the well shall be disinfected according to AWWA standards (A100 and C654). At a minimum, a chlorine concentration of 50 ppm shall be achieved throughout the well. After the contact period, the well shall be pumped to clear it of the disinfecting agent. The disposal point for the purged water shall be selected so as to avoid damage to aquatic life or vegetation.

9. Bacteriological Testing. Two (2) consecutive satisfactory sets of bacteriological samples shall be taken at least twenty-four (24) hours apart from the well after the disinfection and flushing process is competed. The chlorine residual at the time of sampling must be reported. The testing shall be done by a state approved private laboratory at the Contractor's expense. If the membrane filter method of coliform analysis is used, non-coliform growth must also be reported.

10. Well House. A wood frame structure shall be constructed to house the well and appurtenances as shown on the plans. Locks shall be provided to prevent trespassing or vandalism. The structure shall be designed with reasonable convenient access to the interior for maintenance and cleaning. A sign shall be posted on the door with a 24-hour telephone number (to be provided by the engineer) for emergencies.

    The area around the well house shall be graded to prevent surface water from standing within a 50 foot radius.

11. Hydropneumatic Tanks.

    Any paint coatings inside a hydropneumatic tank which come in contact with drinking water shall be epoxy or approved

equal and shall be certified by NSF Standard 061, Drinking Water System Components - Health Effects. The bladder, if present, shall be made of butyl rubber or approved equal, and shall meet FDA requirements for use with potable water. The bladder shall be precharged to the pressure shown on the plans and/or the Equipment Data Sheet.

Hydropneumatic tanks shall be cleaned and disinfected in accordance with AWWA standards (C652). At a minimum, a solution containing 50 ppm of chlorine shall be pumped into the tanks and held for 24 hours. After the solution has been flushed from the tanks, bacteriological samples shall be collected as described in section 8 above. One satisfactory set of samples must be collected from each tank.

GROUND WATER TREATMENT:
CHEMICAL APPLICATION

1. NSF Approval. All chemicals and products added to drinking water shall be certified as meeting the specifications of the American National Standards Institute/National Sanitation Foundation Standard 60, Drinking Water Treatment Chemicals - Health Effects. The certifying party shall be accredited by the American National Standards Institute.

2. Building. Chemical feed tanks, pumps, lines, and storage areas shall be located in an insulated building to provide freeze protection and protection from the environment. The area around the building shall be graded to prevent surface water from standing within a 50-foot radius. The building's construction is detailed on the plans and shall include the following:

   2.1 Floor surfaces shall be smooth, impervious, slip-proof, and drained. A drain shall be provided as shown on the plans, and the floor shall be sloped to the drain.

   2.2 Insect Control. Openings for floor vents and ventilation shall be covered with an insect screen. Openings for water lines and blow-offs shall be sealed around the pipes.

   2.3 Door. The door shall be provided with a lock to prevent trespassing.

3. Equipment.

   3.1 Tanks. Chemical feed tanks shall be constructed of polyethylene. Tanks shall be translucent and have volume markings on the side (a minimum of 5 gallon increments) to allow a visual check of solution level. A drain valve shall be located at the base of the tank, either as part of the design of the tank or installed in the field using a bulkhead fitting. The drain valve shall be located at least 6 inches above the floor; either by utilizing a tank with legs or by installing the tank on a 6 inch platform. Any tank used shall either be new, or previously in use for drinking water service. Any other prior use will require engineer approval.

Where more than one feed tank is being used on a single drinking water system, each feed tank shall be clearly labeled with the name of the chemical feed contained in the tank. Labels shall have letters no less than 1 inch tall.

3.2 Chemical metering pumps. Chemical metering pumps shall be as shown on plans or approved equal with an anti-siphon, backflow preventer.

Metering pump shall be equipped with a manual override to allow operator to disengage automatic controls, if needed.

3.3 Chemical feed tubing. Chemical feed tubing shall be made of polyethylene. Where more than one chemical is being fed into a single drinking water system, each feed tube shall be labeled with the name of the chemical being fed into the system. In addition multiple feed tubes shall be color-coded.

WATER SUPPLY PIPING MATERIALS

1. Certification of and Standards for Construction Materials. All materials/products that contact potable water must be third party certified as meeting the specifications of ANSI/NSF Standard 61 (Drinking Water Components). The certifying party shall be accredited by the American National Standards Institute.

   Pipe, fittings, packing, jointing materials, valves, and fire hydrants shall conform to section C of the AWWA Standards.

2. Pipe. All pipes used to convey potable water shall conform to the following requirements.

   2.1 Ductile Iron Pipe. Ductile iron pipe will be designed in accordance with ANSI specification A 21.50 (AWWA C150) of latest revision. Pipe shall be pressure class 350 or thickness class 51. The pipe shall be manufactured in accordance with ANSI specification A 21.51 (AWWA C151) of latest revision. The pipe shall be Bell and Spigot, Push-on (Glamorgan Tyton, American Fastite, Clow Bell-Tite, or equivalent), or Mechanical; unless otherwise called for on the plans. Pipe will be cement-lined and seal-coated in accordance with ANSI specification A 21.4 (AWWA C104) of latest revision.

   2.2 PVC Pipe. PVC shall be in accordance with ASTM D1785 or ASTM D2241:SD 26 Class 160 and SD 21 Class 200 (for pipes smaller than 4 inches in diameter). Pipes 4 through 12 inches in diameter shall comply with AWWA C900. Pipes 14 through 48 inches in diameter shall comply with AWWA C905. Pipe shall be designed for use at a maximum hydrostatic pressure of two hundred pounds per square inch (200 psi) at seventy-three degrees Fahrenheit (73 degrees F). The pipe shall meet the requirements of Commercial Standard CS256-63, Type I, Grade I, and shall be marked with the National Sanitation Foundation approval at intervals not to exceed eighteen (18) inches. Pipe dimensions shall conform to SDR 21.

   Joints of PVC pipe 2 inches and larger may be of Bell and Spigot design only sealed with a rubber ring, or joints may be of the coupling type sealed with a rubber ring at each end. Where pipe with an integral bell is used, the method of manufacture shall be such that extra wall thickness is provided in the bell area.

When PVC pipe is installed, a coated copper wire (No. 14 AWG minimum) shall be attached to the top of the pipe to aid in future location. Trace wire shall be pulled through valve box with sufficient wire to extend 1 foot above grade.

No thermoplastic pipe, shall be allowed above-grade. All above-grade pipe shall be steel.

Solvent-weld pipe and fittings shall not be used in water mains 4 inches and larger.

2.3 Steel Pipe. Steel pipe shall be Schedule 40, Grade A, galvanized steel column pipe and threaded couplings and bearing mill markings. It shall conform to AWWA C200 or ASTM A53 or A120.

2.4 Asbestos Cement Pipe. No asbestos cement pipe is allowed.

2.5 Used Pipe. If allowed, water mains which have previously been used for conveying potable water may be reused provided they meet applicable criteria from AWWA Section C, ANSI/NSF 61, and ASTM D1785 or D2241. The mains must be thoroughly cleaned and restored practically to their original condition.

3. Fittings. All fittings and specials shall be as follows:

3.1 Ductile Iron Compact Fittings. Ductile iron compact fittings shall be in accordance with AWWA Standard C153 (latest revision). The fittings shall be Bell and Spigot, Push-on (Glamorgan Tyton, American Fastite, Clow Bell-Tite, or equivalent) or Mechanical; unless otherwise called for on the plans. Fittings will be cement-lined and seal-coated in accordance with ANSI Specification A 21.4 (AWWA C104) of latest revision.

3.2 Ductile Iron Fittings. All ductile iron fittings shall be in accordance with AWWA Standard C110 (latest revision). The fittings shall be Bell and Spigot, Push-on (Glamorgan Tyton, American Fastite, Clow Bell-Tite, or equivalent) or Mechanical; unless otherwise called for on the plans. Fittings will be cement-lined and seal-coated in accordance with ANSI Specification A 21.4 (AWWA C104) of latest revision.

3.3 Tees. All tees shall be ductile iron and shall have mechanical joint ends.

4. Gaskets, Joints, and Lubricants. Rubber gasket-joints and lubricants used for pipe and fittings shall conform to AWWA Standard C111 (for ductile iron pipe and fittings) and C900 (for PVC pipe). Any product used for jointing pipes, setting meters or valves, or other appurtenances, that will be in contact with the water shall not be made of natural rubber or any other material which will support microbiological growth. Lubricants which will support microbiological growth (such as vegetable shortening) shall not be used for slip-on joints.

5. Gate Valves. All gate valves shall be equipped with cast iron boxes and covers of the adjustable or extension type, and weighing approximately ninety-three pounds. Valves shall open left (counter-clockwise). All buried valves shall have slip-on or mechanical joint ends, be non-rising stem, and be furnished with 2" square operating nuts. All gate valves shall conform to the following:

5.1 Resilient Wedge Gate Valves. All gate valves shall be resilient wedge type, manufactured by Mueller, Clow, or engineer approved equal, unless specified otherwise on plans or special conditions. All resilient wedge gate valves shall comply with all requirements of AWWA C509, latest revision. Resilient wedge gate valves shall be designed for 200 psi working pressure. All internal and external exposed ferrous surfaces of the valve shall be coated with a fusion-bonded, thermosetting epoxy coating conforming to AWWA C550 and certified to NSF 61.

5.2 Metal-Seated Gate Valves. Metal-seated gate valves shall be manufactured by Mueller, Clow, or engineer approved equal. They shall be cast-iron or bronze, double gate pattern with parallel seat, gray- or ductile-iron body and bonnet, bronze-stemmed, designed for 200 psi normal working pressure from both directions and conforming to the American Water Works Association Standard C500, latest revision.

5.3 Large Gate Valves. Valves twenty-four (24) inches and larger shall be equipped with bypass valves and shall be mechanical joint. Twenty-four inch and larger valves shall be equipped with beveled gears enclosed in grease cases with grease fittings and with bypass, scrappers and rollers. These valves shall have two valve boxes each, one for operating stem on bevel gear and one for the bypass valve.

6. Butterfly Valves. Butterfly valves shall meet the AWWA Standard C504 (latest revision) rubber seat for Class 150B. The butterfly valves shall be mechanical joint and furnished with manual operators. Valves shall open left.

7. Ball Valves. Ball valves shall only be used where shown on plans. Ball valves 6 inches and larger shall meet the AWWA Standard C507 (latest revision). Ball valves smaller than 6 inches shall be NSF certified. Ball valves 2 inches and smaller shall be Mueller curb valves or engineered approved equal.

8. Air Release Valves. Air release valves shall have cast iron body and cover, bronze trim, stainless steel float, and meet the AWWA Standard C512 (latest revision). Air release valves shall be APCO #200A or engineer approved equal.

9. Backflow Preventers. All backflow devices shall be on DHEC's approved list and shall be tested by a certified tester before placing into service.

10. Check Valves. Swing check valves 2" and larger shall be iron body, bronze mounted with a rubber faced disk and shall meet the AWWA Standard C508 (latest revision). All check valves shall be designed for 200 psi working pressure.

11. Valve Boxes. A valve box shall be set at each buried valve of suitable length to provide a cover of not less than 3 feet 6 inches over the pipe. Valve box covers shall have the word "Water" cast on the lid.

    11.1 Cast Iron Boxes. All cast iron boxes shall be of the screw type; minimum thickness of metal at any point shall be 3/16 inch.

12. Fire Hydrants. Fire hydrants shall be dry-barrel and shall conform to AWWA C-502 (latest revision). Use Mueller A-421 three way type or engineer approved equal. All hydrants shall be installed plumb with bottom flange 1-5/8" above grade.

WATER SYSTEMS

1. General. General condition of the Contract and special condition of the Contract shall apply to the sections of the work.

2. Scope. The Contractor shall furnish all material, labor and equipment to construct the water lines shown on the plans, together with all clearing, grubbing, excavation, sheathing, backfilling, foundations, thrust blocks and other appurtenances, as shown on the plans or specified. The lines shall be tested, cleaned and made ready for operation. Potable water systems shall be constructed and sterilized in accordance with South Carolina Department of Health and Environmental Control (DHEC) regulations.

3. Handling and Storage of Materials. The Contractor shall be responsible for all unloading, storage, hauling and distribution of all materials, and shall replace, at his own expense, all such materials that are damaged, destroyed, or lost during or after unloading. All pipes, pipe fittings, valves and accessories shall be handled in a manner to avoid shock, and to protect the coating material.

4. Excavation and Backfilling. The excavation and backfilling shall conform to the requirements of Section 02220 entitled "Excavation and Backfilling for Utilities."

5. Construction Materials. All pipes, valves, valve boxes, fire hydrants, etc. shall conform to the requirements of Section 02660 entitled "Water Supply Piping Materials".

6. Lead free Requirements. All pipe, solder or flux used in the installation or repair of the water distribution system shall be "lead free." Lead free is less than two-tenths percent (0.2%) lead in solder and flux and less than eight percent (8%) lead in pipes and fittings. Leaded joints for the repair of cast iron pipes are not included..

7. Polyethylene Encasement. Gray cast iron pipe, ductile iron pipe, fittings, valves and other appurtenances installed at locations where the water main crosses an existing metal utility line shall be encased in polyethylene in accordance with ANSI A21.5 and AWWA C105 (latest edition) where called for on the plan. No direct payment will be made for this item, the cost of which will be included in the other bid items.

8. Concrete. All concrete work required of every description, shown or specified, including pavements, bedding concrete, thrust blocks, etc, shall be constructed of materials incorporated in the concrete that conform to the South Carolina Department of Highways and Public Transportation Standard Specifications for Highway Construction, latest edition.

9. Reinforcing Steel. Reinforcing steel shall be of new billet steel intermediate grade made by the open hearth process, conforming to the requirements of the "Standard Specifications for Billet Steel Concrete Reinforcement Bars," Serial Designation C15-33 of the ASTM. Bars must be deformed in rolling, and the design of the deformation shall be in accordance with ASTM Designation A 615-68. In addition to the reinforcing indicated on the plans, the Contractor shall furnish all necessary support bars, tie bars, etc., required for properly supporting and spacing the bars in the forms. The reinforcement will be subject to field inspection for rust, shape and dimensions.

10. Air Release Valves. Air relief valves shall be provided in accordance with sound engineering practice at high points in water mains as required. Automatic air relief valves shall not be used in situations where flooding of the manhole or chamber may occur. The discharge port piping shall be extended to the top of the pipe with a screened downward facing elbow.

11. Service Line Connections. Where shown on plans, the Contractor shall tap the water main and install a corporation stop, service line, meter yoke, and meter box according to local water utility specifications. An approved saddle shall be used when tapping PVC. The corporation stop shall be left open, and the service line shall be included in the disinfection and pressure testing procedures.

12. Installation of Valves, Fittings and Hydrants. Valves, fittings and hydrants shall be set in accordance with AWWA C600 or C605 (latest revision).

13. Pipe Laying. All pipe shall be installed at the locations shown on the plans and to the position and alignment as shown thereon, or in the event of grade conflict, as directed by the Engineer. The installation of water mains and appurtenances shall be conducted in accordance with Section C of the AWWA standards and/or manufacturer's recommended standards.

Pipes laying shall be in accordance with AWWA C-600 (ductile iron) or C605 (PVC) of latest revision.

13.1 Thrust Blocks. Thrust blocks shall be constructed of concrete at all tees, bends, and plugs 2-1/2 inches in diameter and larger. All blow-offs and hydrants shall have thrust blocking as shown in standard details. Concrete shall have a 28-day compression strength of not less than 3,000 psi.

13.2 Water Supply Pipes. All water piping shall have a minimum of thirty-six (36) inches of cover over them, or as otherwise specified on the approved plans. Where this is not possible, ductile iron shall be used.

All mains shall be detectable within three (3) feet with electronic locating equipment. Nonmetallic pipe shall be installed with copper wire (No. 14 AWG minimum) or other means of detection.

Water mains shall be located out of contaminated areas, unless using pipe materials that will protect (i.e., DIP with chemical resistant gaskets), re-routing the water line if possible.

13.3 Horizontal Separation of Sewer Lines and Water Mains. A horizontal and/or vertical separation shall be made between water lines and sewer lines as specified in Section 02220 entitled "Excavating and Backfilling for Utilities".

13.4 Cross Connections.

a. There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contamination materials may be discharged or drawn into the system.
b. No by-passes shall be allowed, unless the bypass is also equipped with an equal, approved backflow prevention device.
c. High hazard category cross connections shall require an air gap separation or an approved reduced pressure backflow preventer.
d. Reduced pressure principal backflow prevention assemblies shall not be installed in any area location subject to possible flooding. This includes pits or vaults which are not provided with a gravity drain to the ground's surface that

is capable of exceeding the discharge rate of the relief valve. Generally, if installed in a pit, the drain line shall be 2 times the size of the line entering the backflow prevention device. The drain cannot empty into any type of ditch, storm drain or sewer, which could flood water back into the pit.

e. All piping up to the inlet of the backflow prevention device must be suitable for potable water. The pipe must be AWWA or NSF approved. Black steel pipe cannot be used on the inlet side of the device.

f. Fire line sprinkler systems and dedicated fire lines, except those in the high hazard category, shall be protected by an approved double check valve assembly.

13.5 Chamber Drainage. Chambers for valves, blow-offs, meters, air release valves, or other such appurtenances to the distribution system shall not be connected directly to storm drains or sewer systems.

13.6 Note: It is the Contractor's responsibility to locate and avoid other utilities, both above ground and under ground. No compensation will be allowed for any damaged utilities resulting from the Contractor's work.

14. Highway and Railroad Crossings. Shall be in accordance with AWWA C600, latest edition. Where bituminous pavement is to be cut for the installation of pipe, the Contractor shall cut it neatly in advance of trenching one foot wider than the trench. Backfill shall be thoroughly tamped and compacted to assure proper consolidation. The pavement base shall be six inch (6") crusher run stone well mixed and compacted by rolling. Surface course shall be at least as good as existing surface.

14.1 Steel Casing Pipe. Steel casing pipe for underground installation by dry bore and jacking shall be manufactured in accordance with ANSI specification A53 of latest revision. The steel pipe shall be Type S, Grade B, plain end beveled. Steel casing pipe, sizes twenty-eight (28) inches and larger shall conform to standard pipe dimensions contained in USA Standard USAS B36 of latest revision. All Steel casing pipe shall be furnished in twenty (20) foot lengths, all joints welded. The minimum wall thickness shall be as follows:

Nominal Diameter	Nominal Thickness

(inches)	(inches)
Under 26	0.250
26	0.312
30	0.406
33	0.500
36	0.500

When casing is installed without benefit of a protective coating, and said casing is not cathodically protected, the wall thickness shown above shall be increased to the nearest standard size which is a minimum of 0.063 inch greater than the thickness shown except for diameters under twelve and three-quarters (12-3/4) inches.

15. Pressure Test and Leakage Test. Testing of all lines shall be performed prior to acceptance. Pressure and leakage tests shall be conducted in accordance with AWWA Standards C600. The lines to be tested shall be slowly filled with water, care being taken to expel all air. If necessary, pipes shall be tapped at high points so that the air can be expelled. The Engineer shall be notified sufficiently in advance to allow him to be present at all tests. The hydrostatic pressure shall be at least 150% of the maximum working pressure at the point of the test. However, the test pressure minimum shall be 100 psi, and the maximum shall be the pressure rating of the pipe and appurtenances. Pressure shall be maintained to within +/-5 psi for a minimum of two (2) hours.

Permissible leakage shall be $L = \frac{ND\sqrt{P}}{7,400}$

where L = allowable leakage (gal/hr), N = number of joints in the length of pipeline tested, D = nominal diameter of the pipe (inches), and P = average test pressure during the leakage test (psi). The line shall be rejected if leakage exceeds this amount. This formula may be approximated by:

$L = \frac{SD\sqrt{P}}{133,200}$, where S = length of pipe in feet (assuming 50 joints per 1000 feet). All visible leaks shall be repaired regardless of the amount of leakage. Testing of all lines shall be per AWWA C600 for ductile iron pipe or C605 for PVC pipe, latest edition.

16. Disinfection. Before being placed in service, all new mains and repaired portions of, or extensions to, existing mains shall be disinfected in accordance with AWWA Standard C651

(latest standard). Water lines shall be thoroughly flushed at a minimum velocity of 3 ft/s (may be reduced to 2.5 ft/s for lines 8" in diameter and larger) and then chlorinated with not less than 50 ppm of available chlorine. Chlorine gas or 70% high-test Calcium Hypochlorite can be used.

Chlorine Requirements for 100 ft. Lengths of Various Sizes of Pipe

Pipe Size, (inches)	Vol. of 100-ft Lengths (gal)	100% Chlorine Required for 50 ppm (lbs)	Amt. Required to Give 50 ppm - 1% Chlorine Water Solution, (gal*)
2	16.3	0.007	0.08 (1.3 cups)
2-1/2	25.5	0.010	0.12 (2 cups)
3	36.7	0.015	0.18 (3 cups)
4	65.3	0.027	0.33
6	146.5	0.061	3/4
8	261.0	0.108	1-1/3
10	408.0	0.170	2
12	588.7	0.240	3

*To get 1% Chlorine Water solution from 70% high test Calcium Hypochlorite, dissolve 1 lb. powder to 7-1/2 gallons water.

Water from the existing distribution system or other sources of supply shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine.

The solution should be retained in the pipeline for not less than twenty-four (24) hours and then flushed thoroughly with water of known purity before starting sampling program. Chlorine residual at the end of twenty-four (24) hours retention should be twenty-five (25) ppm minimum.

Factors other than concentration and time affect the efficiency of chlorine; therefore, the above methods are suggested for most circumstances. The true test of disinfection will be sampling required following disinfection. Should a repeat of disinfection process be required, chlorine concentrations should be increased. Two (2) consecutive satisfactory bacteriological samples shall

be taken at least twenty-four (24) hours apart from the water main after the disinfection and flushing process is completed. These samples must be analyzed by a State certified laboratory and must show the waterline to be absent of total coliform bacteria. The chlorine residual at the time of sampling must be reported. Prior to sampling, the chlorine residual must be reduced to normal system residual levels or be non-detective in those systems not chlorinated.

If the membrane filter method of coliform analysis is used, non-coliform growth must also be reported. If the non-coliform growth is greater than 80 colonies per 100 milliliters, the sample result is invalid and must be repeated. No user may be tapped on until bacteriological samples have been approved by DHEC, and the system has their final approval in writing.

One set of samples (2 samples per set) shall be collected from every 1,200 feet of new water line, plus at least one set from each branch, dead-end, or loop. Note that a straight run of pipe 1,199 feet long will require one set of samples, 1,200 feet long will require 2 sets of samples, 2,400 feet long will require 3 sets of samples, etc. The testing shall be done by a state approved private laboratory at the Contractor's expense.

17. Measurement and Payment. Payment for pipe, valves, fire hydrants, concrete for blocking, cast iron fittings shall be actual quantities as measured at the unit contract price. This unit contract price shall include cost of clearing, excavations (except solid rock), backfilling, clean-up, testing, disinfection, and permits.

18. Design Criteria. Please notify the engineer if any part of the plans is found to contradict any of the following design standards:

    18.1 Dead End Lines. The lengths of small diameter dead end lines shall not exceed the following:
    a. 1" diameter - 150 feet.
    b. 1.25" diameter - 200 feet.
    c. 1.5" diameter - 300 feet.
    d. 2" diameter - 1,500 feet.

    18.2 Blowoffs. Blowoffs are required on any line 2" in diameter or greater and 200 feet or longer. Post hydrants (on a line 3" or larger) or fire hydrants (on a line 6" or larger) may be used in place of blowoffs if pressures are sufficient. No flushing device shall

be connected to any sewer (Regulation 61-58.4.D(7)(f)).

18.3 Fire Hydrants. Fire hydrants shall not be located on any water line smaller than 6 inches in diameter. Fire hydrant leads shall be a minimum of 6 inches in diameter and shall include auxiliary gate valves. A gravel pocket or dry well shall be provided unless the natural soils provide adequate drainage. Hydrant drains shall not be connected to or located within 10 feet of sewer systems.

18.4 Post Hydrants. Post hydrants shall not be used on water lines smaller than 3 inches in diameter.

18.5 Backflow Prevention Devices. No backflow device shall have a bypass unless the bypass itself has an equal backflow protection.

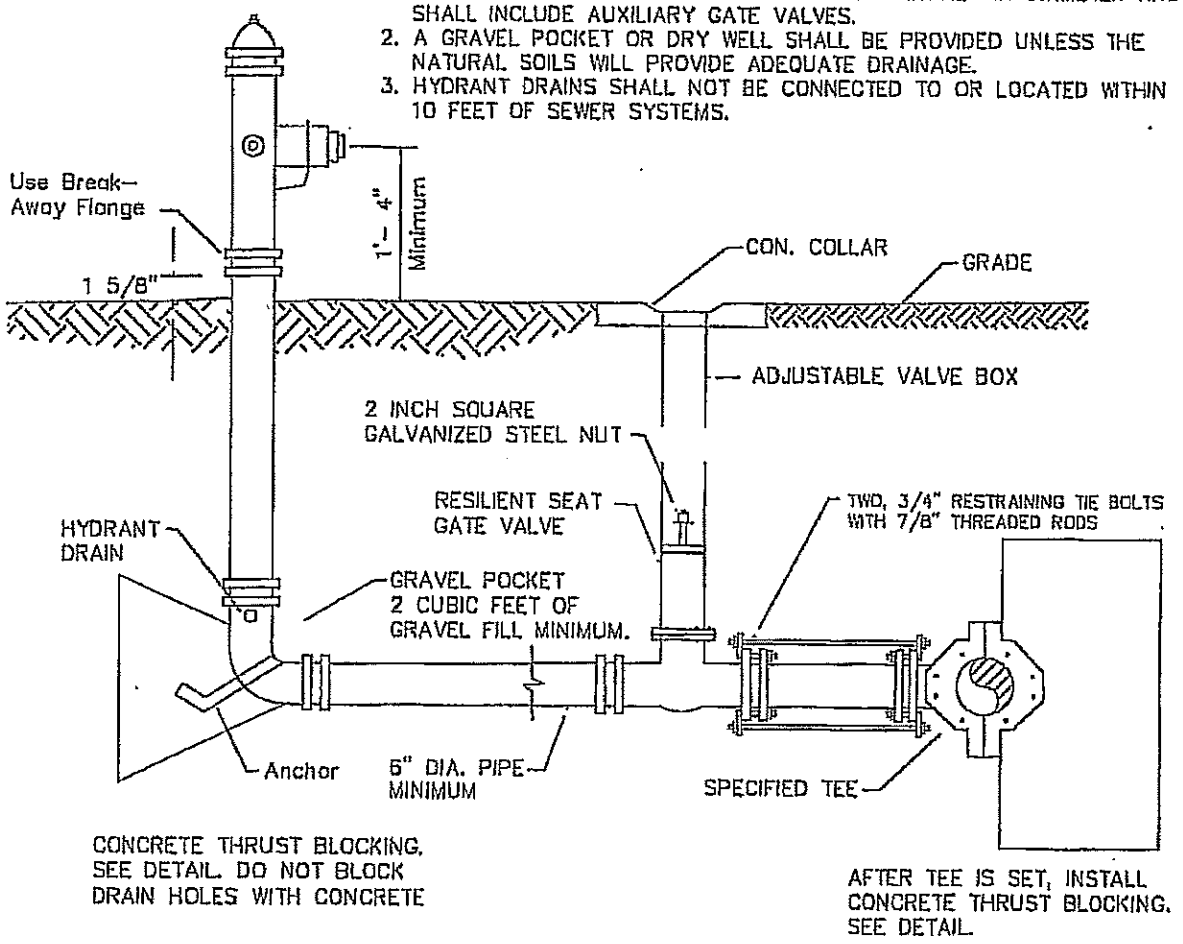
18.6 Fire Lines. A minimum of a double check valve assembly shall be used on dedicated fire lines.

19. Standard Details. Where applicable, adhere to the following standard details shown on the following pages:

19.1 Fire hydrants;
19.2 Thrust-Blocks;
19.3 Blowoffs; and
19.4 Air Release Valves; and
19.5 Post Hydrants

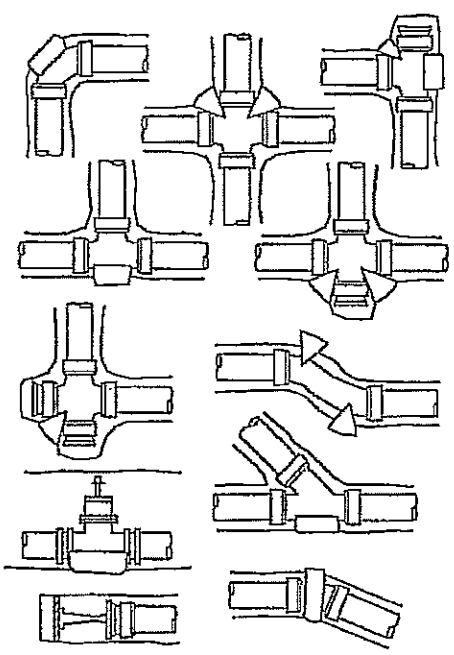
NOTES:

1. HYDRANT LEADS SHALL BE A MINIMUM OF 6 INCHES IN DIAMETER AND SHALL INCLUDE AUXILIARY GATE VALVES.
2. A GRAVEL POCKET OR DRY WELL SHALL BE PROVIDED UNLESS THE NATURAL SOILS WILL PROVIDE ADEQUATE DRAINAGE.
3. HYDRANT DRAINS SHALL NOT BE CONNECTED TO OR LOCATED WITHIN 10 FEET OF SEWER SYSTEMS.



FIRE HYDRANT, VALVE, AND TEE SETTING

N.T.S.



THRUST BLOCK DETAILS

N.T.S.

THRUST BLOCKING SIZE CALCULATION

STEP 1: ADD 50 LBS. FOR PRESSURE TESTING TO THE MAXIMUM RATING OF THE PIPE. MULTIPLY THIS FIGURE BY THE APPROPRIATE VALUE SHOWN IN THE FOLLOWING TABLE.

THRUST PER POUND OF WATER PRESSURE AT VARIOUS FITTINGS

PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
2.0	4	6	4	2
2.5	7	10	6	3
3	9	14	8	4
4	18	26	14	7
6	37	53	29	15
8	64	91	49	25
10	97	137	74	38
12	137	194	105	53
14	184	260	141	72
16	238	336	182	93

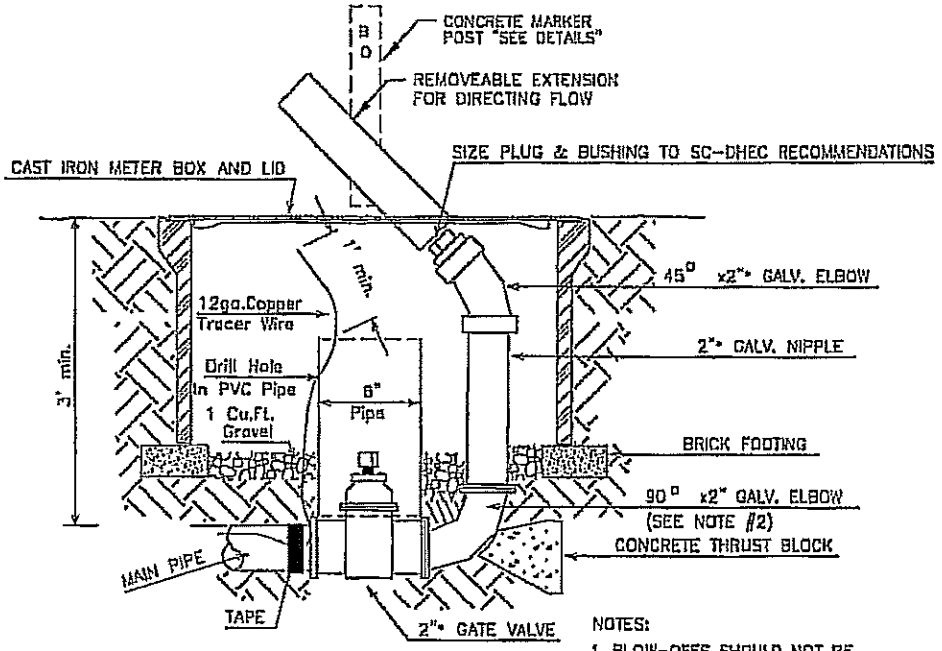
STEP 2: DETERMINE BEARING STRENGTH OF THE SOIL FROM THE FOLLOWING TABLE.

BEARING STRENGTH OF SOILS

* SOILS AND SAFE BEARING LOADS	LBS/SQ FT
SOUND SHALE	10000
CEMENTED GRAVEL AND SAND - DIFFICULT TO PICK	4000
COARSE AND FINE COMPACT SAND	3000
MEDIUM CLAY-CAN BE SPADED	2000
SOFT CLAY	1000
MUCK	0

* SEE ENGINEER FOR CLASSIFICATION OF SOILS

STEP 3: DIVIDE THE TOTAL THRUST OBTAINED IN STEP 1 BY THE BEARING STRENGTH OF THE SOIL (STEP 2) TO DETERMINE THE SQUARE FOOTAGE OF THRUST BLOCK AREA REQUIRED.



BLOW-OFF SIZE

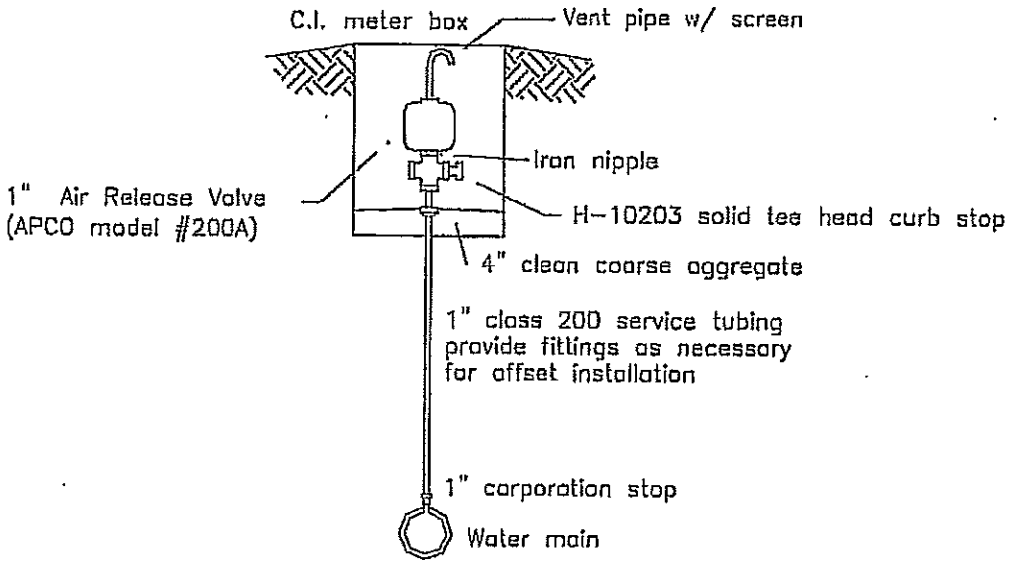
LINE SIZE	MINIMUM FLOW REQUIRED	ORIFICE SIZE
2"	25 GPM	3/4"
2 1/2"	40 GPM	1"
3"	60 GPM	1 1/4"
4"	100 GPM	1 1/2"
6"	220 GPM	2"
8"	400 GPM	2 1/2"
10"	612 GPM	FIRE HYDRANT
12"	882 GPM	FIRE HYDRANT
14"	1200 GPM	SPECIAL BLOW-OFF
16"	1570 GPM	SPECIAL BLOW-OFF

NOTES:

1. BLOW-OFFS SHOULD NOT BE DIRECTED TOWARDS ROADS OR SO THAT WATER WILL FLOW INTO CREEKS, ETC. AT STREAM CROSSINGS DIRECT AWAY FROM STREAMS, OVER GROUND.
2. 8" MAIN REQUIRES 2 1/2" OR LARGER BLOW-OFF PIPE.
3. ORIFICE TO BE PROVIDED ON THE FIXED PIPING IN THE VALVE BOX.

WATER BLOW-OFF
Standard Installation Detail

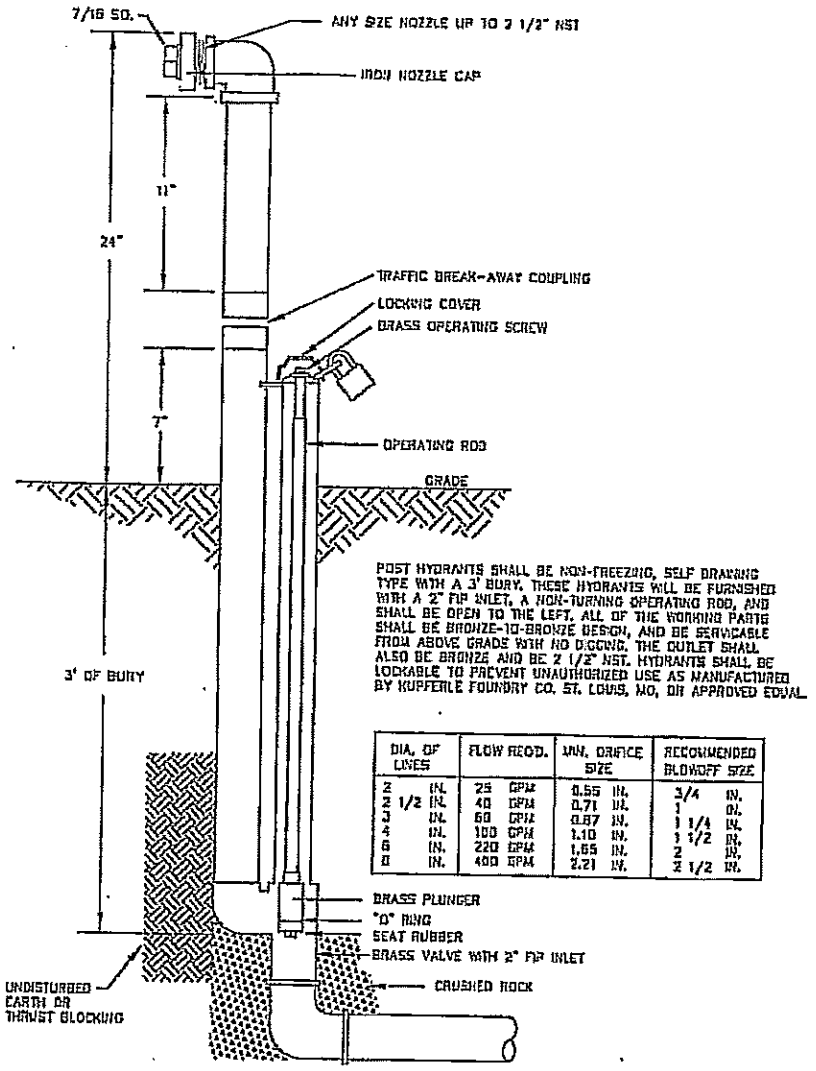
N.T.S.



Note: The air relief pipe shall extend to the top of the pit.

TYPICAL AIR RELEASE VALVE

N.T.S.



POST HYDRANT

NOT TO SCALE

Water Supply Construction Permit
Bureau of Water

DHEC
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Permission is Hereby Granted To: TOM WINKOPP
391 COLLEGE AVE STE 406
CLEMSON SC 29631

for the construction of a distribution system in accordance with the construction plans, specifications, design calculations and the SC DHEC Construction Permit Application signed by Adam Hogan, Registered Professional Engineer, S.C. Registration Number: 25472.

Project Name: HIGHPOINTE County: Oconee
Location: LOCATED OFF OF WEST CHERRY ROAD

Project Description: Installation of approximately 7,164 LF of 6" DIP water main, 114 LF of 2" PVC water main, five (5) fire hydrants and all necessary appurtenances to serve this project.

Service By: The water will be provided by Seneca Light & Water Plant (System Number: 3710002).

Special Conditions:

1. All construction and materials for this project must conform to the Standard Specifications for GOLDIE & ASSOCIATES.
2. Final approval for this project will depend upon the satisfactory testing of all backflow prevention devices (BPDs). The enclosed form shall be completed & submitted by the engineer. All bypasses installed shall have an equal, approved BPD.
3. This proposed system's feasibility and viability have been proven satisfactory for the issuance of this construction permit; should any item submitted for that review change materially during the construction phase of the project please update your viability submittal accordingly.
4. Evidence that Jacabb Utilities LLC is the owner of the completed water system including all easements for its distribution system must be available to the DHEC inspector before the final construction approval can be issued.
5. Provide the DHEC inspector a listing of all properly certified distribution system operators, i.e. Jacabb Utilities LLC employees and contracted personnel, who could perform operator duties for the Highpointe development.
6. The sample siting plan and a detailed flushing plan must be available for inspection by the DHEC inspector before the final construction approval can be issued.
7. A completed Operation and Maintenance Manual must be available for the DHEC inspector's review when the final construction inspection is made.
8. Documentation must be available to the DHEC inspector indicating the SC Public Service Commission has approved this system's requested service area inclusion in the Jacabb Utilities LLC tariff from PSC.

In accepting this permit, the owner agrees to the admission of properly authorized persons at all reasonable hours for the purpose of sampling and inspection.

This is a permit for construction only and does not constitute State Department of Health and Environmental Control approval, temporary or otherwise, to place the system in operation. An Approval to Place in Operation is required and can be obtained following the completion of construction by contacting the ANDERSON EQC OFFICE at 864-260-5569. Additional permits may be required prior to construction (e.g., stormwater).

Permit Number: 25345-WS
Date of Issue: December 20, 2007
Expiration Date: Construction must be completed prior to December 20, 2010 or this permit will expire.

David C. Price, P.E., Assistant to Director
Water Facilities Permitting Division

DPJ

Bureau of Water, DHEC, 2600 Bull
Received Time Dec. 20. 12:56PM

Post-it® Fax Note 7671	Date	# of pages ▶
To Adam Hogan	From David Johnson	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # 864-882-6851	Fax #	

Water Supply Construction Permit
Bureau of Water

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Permission is Hereby Granted To: THOMAS P WINKOPP
391 COLLEGE AVE STE 406
CLEMSON SC 29631

for the construction of a distribution system in accordance with the construction plans, specifications, design calculations and the SC DHEC Construction Permit Application signed by Adam Hogan, Registered Professional Engineer, S.C. Registration Number: 25472.

Project Name: HIGHPOINTE-PHASE II **County:** Oconee
Location: LOCATED OFF OFF W. CHERRY ROAD

Project Description: Installation of approximately 2949 LF of 6" water main, 2 fire hydrants and all necessary appurtenances to serve 112 units.

Service By: The water will be provided by Seneca Light & Water Plant (System Number: 3710002).

Special Conditions:

1. All construction and materials for this project must conform to the Standard Specifications for GOLDIE & ASSOCIATES.

In accepting this permit, the owner agrees to the admission of properly authorized persons at all reasonable hours for the purpose of sampling and inspection.

This is a permit for construction only and does not constitute State Department of Health and Environmental Control approval, temporary or otherwise, to place the system in operation. An Approval to Place in Operation is required and can be obtained following the completion of construction by contacting the ANDERSON EQC OFFICE at 864-260-5569. Additional permits may be required prior to construction (e.g., stormwater).

Permit Number: 25523-WS
Date of Issue: February 19, 2008
Expiration Date: Construction must be completed prior to February 19, 2011 or this permit will expire.

David C. Price, P.E., Assistant to Director
Water Facilities Permitting Division

KBJ(c)